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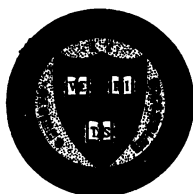
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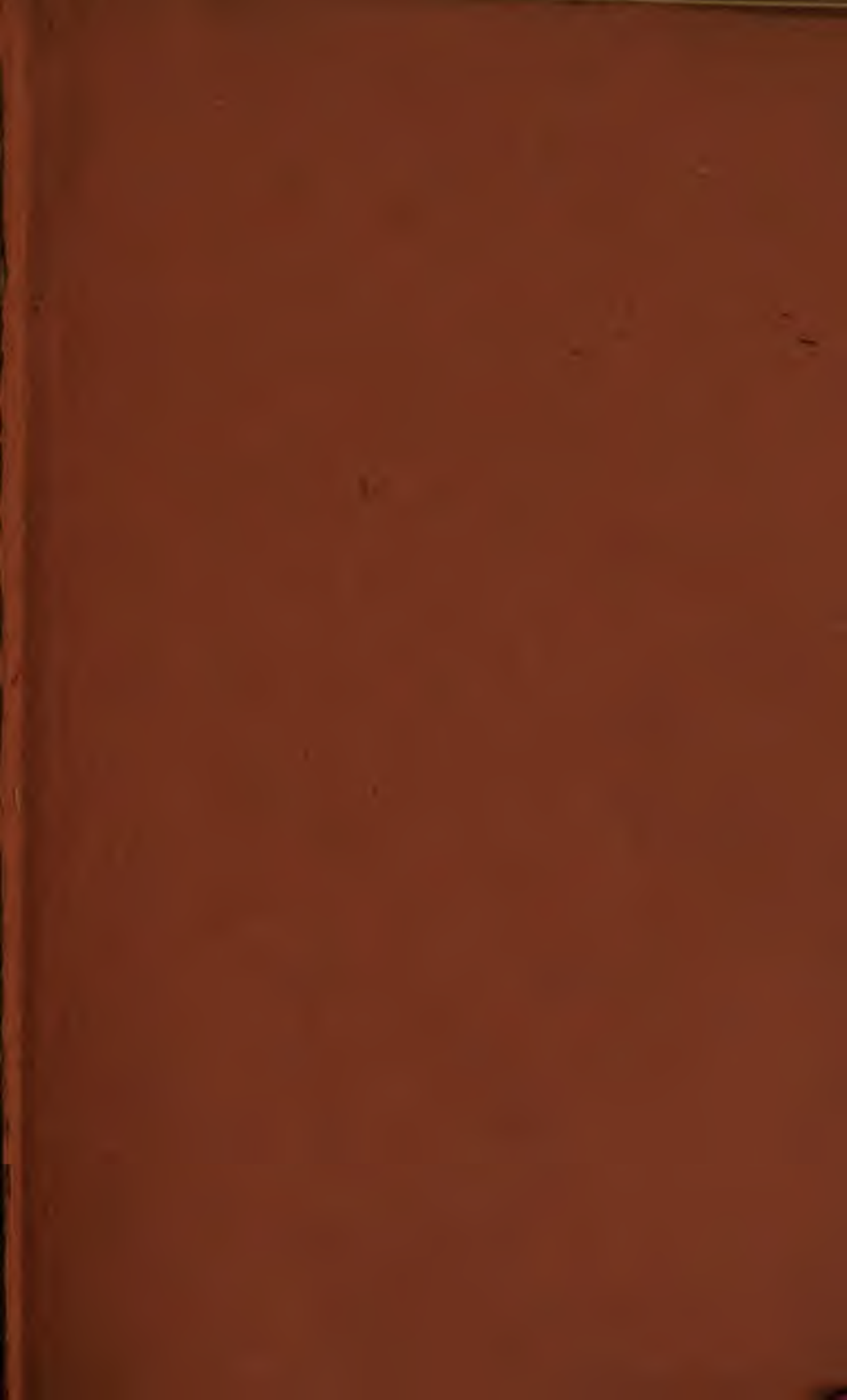
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THE GIFT OF
FRANCIS SKINNER
OF DEDHAM
IN MEMORY OF
FRANCIS SKINNER
(H. C. 1862)

Received

May 1909.













Madame Desirée Giraud.

THE
FLORICULTURAL CABINET,

AND

Florists' Magazine.

JANUARY TO DECEMBER, 1854.

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P R E F A C E.

AGREEABLY to periodical custom, we have again the pleasure, on the completion of another Volume, of thanking our friends and correspondents for the continued confidence they have manifested in "THE FLORICULTURAL CABINET," and for the liberal support which they have afforded to it, many of whom, "we feel proud to state," have done so for the long period of twenty-two years. For such liberal aid, we return them our warmest and most grateful thanks; and, at the same time, venture to hope, "that the *evidence* we have at all times manifested of our ardent desire to be useful in promoting the cause of Botanical, Floricultural, and Horticultural science," will secure for us, in the year 1855, a still *larger amount* of support; and we respectfully solicit the continued co-operation of our friends in all parts "*abroad*" as well as "*at home*," as also of all who feel an interest in flowers and floriculture; and, thus assisted, we are more determined than ever, "to spare neither *trouble* nor *expense*," to render this Magazine as *perfect* and *useful* as possible. The realisation of our anticipations can only be fully effected but *with* such hearty co-operation, and therefore we hope, that every new fact, "suited for our pages," which may come under their observation, may be *early transmitted* to us for publication; thus, "and thus only," is it possible for us *increasingly* to attain that eminent *usefulness* which we are anxious should always characterise the FLORICULTURAL CABINET. We think every reader of our pages may contribute *somewhat* that will be interesting and useful in some degree. The student of Botany, or practical Floriculturist, has not hitherto acquired that consummate knowledge of the *vegetable world*, to enable him to say "the field of discovery and investigation exhibited a tendency *too narrow*, and the *boundary*, "beyond which the science could not be carried," was visible before him. That this has never, *in any instance*, been the case, all past experience abundantly testifies. Fact after fact follows in the rear of its predecessor, and dis-

PREFACE.

coveries roll on like a mighty stream, proving, with a force irresistible, that its resources are boundless. Who dare set a limit to the beautiful forms that may yet be poured forth from the vast tracts of our GLOBE, still unexplored? or who will venture to predict that nature has been "over-worked," and that she will, in future, resist all the efforts of Floricultural skill? We think "*Floriculture* has only just displayed its *opening* buds;" but, at the same time, surveying what has (within a few years last past) been accomplished, we have bright hopes with respect to the future continuous development of the ever-expanding bloom, and we again ask our readers to unite with us in contributing to promote its more universal display. To aid in its realisation, we have made arrangements, which are in preparation, that our NEXT VOLUME will be on a MUCH IMPROVED scale. As heretofore, we shall exercise care in the selection of only the BEST AND MOST SHOWY PLANTS for our PLATES, and the entire execution of the *engraving* and *colouring* of the subjects will be of "*first-rate excellence*," surpassing that of any other floral publication issued in this country. We shall also give superior engravings of NEW TREES and SHRUBS, as well as PLANS of gardens, and grounds. We therefore reiterate to our readers, HELP US, by your PEN, PENCIL, and ADVICE; and, as the publication shall merit, we respectfully ask you to recommend it to the lovers of flowers.



ROSE, MADAME DESIRÉE GIRAUD.

"Rose! thou art the sweetest flower
That ever drank the amber shower;
Rose! thou art the fondest child
Of dimpled Spring, the wood-nymph wild."

THE Rose, which is the emblem of beauty and the pride of Flora, reigns **QUEEN OF THE FLOWERS** in every part of the globe; and the **BARDS** of all nations and languages have sung its praises. Yet what poet has been able, or language sufficient, to do justice to a plant that has been denominated the "Glory of the Spring," and the "Ornament of the Earth?"

"Queen of the flowers that made Eden's garden gay,
The morning blushes of the Spring's new day."

Poets have celebrated its charms, but not exhausted its eulogium, for its allurements increase upon a familiarity; every successive season and fresh view present new beauties and supply additional delight. Hence, it renovates the imagination of the Bard, and the very name gives harmony to his numbers:—as soft as a rose-leaf; as sweet as a Rose; rosy-clouds; rosy-cheeks; rosy lips; rosy blushes; and rosy-dawns: whilst its fragrant perfume gives sweetness to the air.

To paint this universal emblem of delicate splendour in its own hues, the pencil should be dipped in the tints of Aurora, when arising in her aerial glory. Human art can neither colour nor fully describe so fair a flower. **VENUS** herself feels a rival in the Rose, whose beauty is composed of all that is exquisite and graceful. The "beauty of the morning" is allegorically represented by this flower, and **AURORA** is depicted strewing roses before the chariot of **PHÆBUS**:

"When morning paints the eastern skies,
Her fingers burn with roseate dyes."

How general, too, has the Rose been associated with, and made the symbols of, very opposite sentiments. Piety has seized it to decorate the temple, whilst Love expressed tenderness by wreaths, and Mirth revelled, adorned with crowns of roses; Grief strews it on the tomb, and Luxury spreads it on the couch; it is mingled with our tears, and spread in our gayest walks.

Perhaps the most beautiful period of the ROSE is when partly blown, —then we have the promise of a continuance of delight; but when full-blown, she inspires us with the fear of losing her.

“ Nature and fortune join’d to make thee great :
Of Nature’s gifts thou may’st with lilies boast,
And with the half-blown rose.”—SHAKESPEARE.

The interest which flowers have excited in the breast of man, from the earliest ages to the present day, has not been confined to any particular class of society, or quarter of the globe; and though the rude savage of the forests, in the joy of his heart, binds his brow with the native flowers of his woods, yet the *cultivation of flowers* increases in every country, in proportion as the blessings of civilization extend. And of all proper luxurious indulgences, that of flowers is the most innocent, whilst man alone seems capable of deriving enjoyment from them; that, too, commences with his infancy, remains the delight of his youth, increases with his years, and becomes the quiet amusement of his age; admiring, with increasing amazement, the wonderful works of the Almighty, tending thus to soothe declining years.

Of all the floral embellishments of the garden, THE ROSE is the most general, and is so *universal an ornament* thereof, as to be grown in nearly every garden, from that of the palace to the humblest cottage. Its presence supplies beauty to the sight and fragrance to the smell. But of all the delights in floriculture, perhaps that of raising new varieties of flowers is the most pleasing, and in many instances very profitable also. In this particular pursuit with the ROSE, the nurserymen and florists on the Continent greatly excel, as is abundantly testified by the immensity of kinds which enrich the collections of our own country’s nurseries and gardens, and from whence the profuse displays of such beautiful varieties are supplied to the Floral Exhibitions of London, as well as throughout the provinces. Amongst the *most beautiful* which have been produced, are several fine striped varieties, and the one we now figure stands *pre-eminently superior* to every other, and a plant of it ought to be in every garden. The stock of it is in the possession of Mr. Van Houtte, and plants of it may be had in this country next April.

This charming variety is a seedling which sprung up near to a plant of the Baronne Prevost Rose, in the garden of Madame L. G. D. Haussy, of Marley, near Versailles, in France. It is an “Hybrid Perpetual,” and a very free bloomer. The flowers are regularly “and very distinctly striped, some with crimson, others with amaranth, and the remainder with slate colour, but the individual blossom has stripes only of *one colour*; so that one blossom has crimson stripes, a second has amaranth stripes, and a third has stripes of a slate colour. This very singular distinction of the flowers renders it peculiarly beautiful.

NOTES ON NEW OR RARE PLANTS.

BILLBERGIA THYRSOIDEA, DENSE FLOWERED.—A stove plant, from Brazil, of the natural order Bromeliaceæ (Pine-apple plant). The leaves are two feet long, broad strap-shaped, serrated. The flowers are produced in a large, long, dense spike, each blossom being about three inches long, red, with a blue-tipped stigma and yellow anthers. It is a handsome species, well deserving a place in the stove. Messrs. Henderson, of Wellington-road Nursery, have bloomed it.—Figured in *Botanical Magazine*, 4756.

CIRRHOPE TALUM CORNUTUM, HORN-BEARING.—A very singular and pretty flowering stove orchideous plant, which Mr. Simon sent to the Royal Gardens at Kew, from Eastern Bengal. It has recently bloomed in the stove at Kew. The leaves are leathery, oblong, about nine inches long. The flower-scapes are each about ten inches high, and terminate in an umbel of from six to ten flowers. Each blossom is two inches long. Petals small, of a yellowish-green and white. Sepals, upper one small, of a similar colour to the petals, but additionally sprinkled with purple dots. The two side ones are nearly two inches long, pendant, and meet at their edges, so as to form a *tube* of that length, of a dark-purple blood colour, green at the tip, nearly white and spotted at the base. The entire umbel of flowers have somewhat the appearance of some of the *Lachenalias*.—Figured in *Bot. Mag.*, 4753.

COLEUS BLUMEI.—It has been considered to be a native of Java, but BLUME, who mentions it as being there, states it is cultivated in the gardens, and does not intimate of its being a native plant. We first heard of its being introduced from thence to Holland, and subsequently distributed into Belgium, and more latterly received from Belgium into the various London nurseries. The plant is exceedingly ornamental, the leaves being most strikingly mottled, and blotched with purple and crimson; edged with vivid green, or yellow-green, according to age. Each full-grown leaf is five inches long, and half that in breadth. The plant is very branching, and forms a compact bush two feet high, or upwards, and half a yard in diameter. The flowers are, in form, like some of the *small-blossomed* *Salvias*, produced in long spikes, from six to eight inches long. Each blossom is about three parts of an inch across, having a tube about half an inch, blue, and the other portion of the corolla white and purple. It succeeds best in the stove, where plants may be had in bloom all the year. It will flourish in a warm part of the greenhouse, from March to November, and in a warm sheltered situation in the open ground, during summer. It merits a place in each situation named. It is easily cultivated and increased.—Figured in *Bot. Mag.*, 4754.

DENDROBIUM CYMBIDIODES.—A native of Java. The flowers are produced in terminal spikes, of about seven blossoms in each. Each flower is nearly three inches across; sepals and petals are narrow, of a buff-yellow colour. Labellum, about an inch across, white, sprinkled with dark purple linear blotches. It is in the collection of stove Orchids in the Royal Gardens at Kew.—Figured in *Bot. Mag.*, 4755.

DIDYMOCARPUS HUMBOLDTIANA.—Mrs. General Walker first sent to this country copious specimens of this neat, pretty plant, from the elevated mountains of Ceylon. The habit and appearance of the entire plant is very much like the *Chirita Sinensis*, excepting the flowers being of a smaller size. The blossom is of a Gloxinia-like shape, nearly an inch long, and as much across the front of the full opened flower; of a pretty pale-lilac colour. Each of the flower-stalks rises about six inches high, and terminates in a loosish panicle of five or six blossoms. It flourished in the Royal Gardens at Kew, in the greenhouse, and bloomed there last autumn. It is neat and pretty.—Figured in *Bot. Mag.*, 4757.

REMARKS ON A MORE EXTENDED CULTURE OF THE ROSE.

BY MR. PETER MACKENZIE, OF WEST PLEAN, NEAR STIRLING.

AT this season of the year (December 10th), when the weather is open, many things might be done that would add beauty to places that at present have much need to be improved. This is a good time yet for planting roses; and garden and pleasure-grounds might be more gay in summer and autumn if what are called *Pillar Roses* were more introduced than what they are; even cottage gardens could have them, and the roadside of the country should be more enlivened with their beauty and fragrance. Mr. Rivers says, "One of the prettiest floral fancies is that of forming pillars of roses." These pillars consist of roses trained in iron stakes, from twelve to fifteen feet high, well painted, and they form the most durable, as well as the most picturesque objects in garden scenery. Merely to show how a heap of clay may become a mount of beauty, we levelled and made circular a large piece of white sand and blue clay, dug from a pit containing water. On this, with a small portion of dung and pit-sand to each plant, we planted some of all the hardy climbing roses, and the effect is now exceedingly beautiful, and in another summer it will be a mount of rose pillars, each from eight to ten feet high.

Many of these universal favourites would have a fine effect in the numerous wild and romantic situations in Britain. Many of them could be set up in such places as are described by the author of the "Minstrel," when he says:

"Along this narrow valley you might see
The wild deer sporting on the meadow ground,
And here and there a solitary tree,
Or mossy stone, or rock with woodbine crown'd;
Oft did the cliffs reverberate the sound
Of parting fragments tumbling from on high,
And from the summit of the craggy ground
The perching eagle oft was heard to cry,
Or on resounding wings to shoot athwart the sky.
One celebrated spot there was that spread
Its flowery bosom to the noonday beam,
Where many a *rose-bud* rears its blushing head,
And herbs, for food, with future plenty teem."

Instead of iron stakes, larch poles would last for many years, and could be made to suit the nature of the plant that was intended to be trained. Climbing roses could be supplied at a cheap rate from the extensive collections of the nurseries; and in places where the finer sorts of roses would not thrive, the double Ayrshire Roses would grow well, and if blended together, the dark velvety crimson of the Ayrshire Queen would contrast well with the creamy-white of the Countess of Leven, or the pure white of the Queen of the Belgians. Or if different-sized flowers were wanted, there could be the small neat roses of the Dundee Rambler and Bennett's Seedling, or the large creamy-white of the Splendens. These growing together, or in single plants, have a fine appearance when kept in good order.

Many of these hardy roses could be budded upon tall stems of the common briar, and however much some people may choose to differ on certain subjects, none, we should imagine, would, as far as the rose is concerned,

" Love it none the less
For growing in a wilderness."

Again; many lovers of the rose, wishing to make their garden gay with that delightful flower, purchase what are called *Autumnal Roses*, and if they are not careful in getting early varieties, it may be on the confines of winter before they have their plants in flower—and in some parts of the country they will not flower at all, unless the season be very fine; but even late and shy-flowering plants may be greatly helped, and beautiful blossoms may be had in places where they never were before, if the following simple plans were adopted. They refer chiefly to vigorous-growing plants, that make long shoots and produce some fine flowers, but late in the season: and those who possess them often wish that the roses were more numerous and their season of blooming more early.

Now, it is a common practice in many places, in order to keep vigorous-growing plants within proper limits, to cut the shoots nearly close to the ground, and next year a number of strong stems spring from the stock; but if last year's shoots are not yet cut, it would be better to select one of the strongest of them, and cut it off about four or five feet from the ground. The rest of the shoots may be cut as close as possible to the old stock, and the shoot that is left should be well fastened to a neat stake put into the ground. When spring commences, a number of buds will be pushing forth from the bottom of the plant and along the stems that were tied up; these should be all rubbed off when they make their appearance, except a few near the top of the stem; and as summer advances, strong shoots will be growing from the places where the buds were left. These must receive a check, in order that an early and an abundant crop of autumn roses may be obtained. One of the plans is, to put into practice what is called "balloon training." This can be easily done by fixing pieces of cord, or fine wire, between the top of the plant and some pegs fixed in the ground in a sloping direction, and training the young shoots along them. This method stops the rapid flow of the sap, and an abundant bloom is

obtained, and in many cases the roses will be six weeks or a month earlier than those that are left to grow in a rambling manner.

By such simple means the flower-garden may be greatly beautified and its fragrance enriched, "without the fervour and the force of Indian skies;" and with our eyes gazing with delight upon clusters of blushing beauties, we will be ready to say with our native poet—

" May'st thou, sweet crimson gem,
Richly deck thy native stem
Till some evening, sober, calm
Dropping dews and breathing balm,
While all around the woodland rings,
And ev'ry bird thy requiem sings,
Thou amid the dirgeful sound,
Shed thy dying honours round,
And resign to parent earth,
The loveliest form she e'er gave birth."

Another plan which we have practised for some years, and which answers the purpose very well, is, when the principal shoots are about two or three feet long, to tie a piece of small cord loosely towards the extremity of the shoot, then bend it gently inwards to the main stem of the plant, and fasten it with the cord to the stem. When all the shoots are regularly bent, the head of the plant has a globular appearance, and occupies less space than most of the plans recommended for retarding the flow of the sap; and by this method we also obtain a beautiful bloom of roses from plants that before this plan was put in operation seldom produced any flowers.

BEDDING CALCEOLARIAS, THEIR TREATMENT, AND A LIST OF A FEW CHOICE VARIETIES.

BY MR. JOHN BURLEY, FLORIST, ETC., ST. JOHN'S WOOD.

THIS useful bedding plant, with its numerous varieties, cannot be too highly prized by those who have a garden, and wish for showy masses of various coloured flowers; in fact, what have we to equal it as a bedding plant? yet, with all its beauty, it is not grown to that extent that it should be—there are to be found in gardens in general only a few varieties, such as a yellow, the old crimson, &c. Nurserymen and florists have only of late taken to hybridising them, and the few that have done so have met with very encouraging success. The greatest improvements that have been made in them this year, is a collection that was exhibited by Mr. Constantine, gardener to Mr. Mills, of Hillingdon; it consisted of eight fine varieties, possessing all the good qualities that should belong to a bedding Calceolaria,—viz., fine flowers, abundant bloomers, of close compact habit, and having that stout rough foliage which gives the plant such a lively appearance. Five of these charming varieties were quite distinct and novel from any I had previously seen, those I have marked thus (*) in the annexed descriptive list. There are also a few others that will be found very useful in the garden, and quite superior in all points to our old favourites. We now have a good variety in

nearly all colours; and I strongly recommend them to be planted in their varieties, each sort occupying one bed; they will then be found to give more satisfaction than most of our bedding plants, as they not only possess the superior quality of continual bloom through summer and autumn, but have the dwarf and compact habit, which, combined, render them unequalled as bedding plants. I have been asked by several friends how to propagate them so as to produce enough stock to form a bed. Now, I have an idea that a great many persons would grow them if they only knew an easy way of increasing and treating them through the winter. To obviate any complaint that may be made relative to their propagation, I here give the necessary directions, as well as of their general treatment throughout their various stages of growth. Supposing that a few good varieties are purchased in the spring of the year, and having one plant of each strong and well-rooted at the planting-out season, they should be potted into 32-size pots, and planted, or rather plunged, in the pots into the border, and, *of course, deep enough to hide the rims of the pots*. During summer, they will require only to be kept duly watered when the weather is hot and dry. In autumn, when frost is expected, they may be lifted out of the soil, the pots be cleaned, and, taking off any roots that have pushed outside of the pot, the plants may then be removed to a cool house or frame, and remain for a fortnight (*supposing they are taken out of the ground in October*); they must then be placed in a little heat, commencing that operation slowly, but increasing it until there is a temperature of about sixty degrees, which will be found quite sufficient to excite them to a growing state, which they will be found soon to do. Then the temperature of the house may be lowered a little, to allow of the young wood getting a little hardened; and when they are hard enough to bear the knife, and without being too pulpy to fog off, cuttings must be taken from these plants, cutting them off to a joint, and not too long; in fact, all that will be required on a cutting is the joint that is placed in the pot, and a heart or centre above the soil. When they are ready, they must be placed in a cutting-pot, prepared as follows:—Let the pot be half-filled with crocks, broken rather small, and on the top of that about two inches more of the siftings of the soil; then fill the pot with some good light well-sandy soil, finishing on the surface with the thinnest coat of clean silver sand. The pot will now be ready to receive the cuttings, which may be just plunged under the surface; let the same be settled down with a slight watering, and placed in a warm part in the house, with as much heat as may be in the area of the house, but by no means plunge the pots in *bottom heat*, as nothing is more fatal to them than bottom heat; they may be placed on a wood or a stone slab, or any cold bottom, and they will soon form their roots. Care must be taken to remove any leaves that damp off, as they will, if allowed to remain, destroy the cutting. As soon as they are rooted, they must be potted into small 60-sized pots, using the same sandy soil as for cuttings, and, being well drained, they may remain in the warm house until they form fresh roots, when they may be removed to a cooler one, or a frame. This is all the process required in propagating them. During the remainder of the season they will only need to be

kept clean, and moderately watered, until bedding-out season arrives; when the various varieties must be collected together, and planted in masses of the different colours, planting them at moderate distances from each other, but so close as to form a compact bed, and thereby ensure a good bed of bloom. But should the stock of any new varieties be short of supply for a bed, I advise them to have the plants potted, and plunged here and there in the borders, to ensure strong plants for propagating from for the following year's supply. The same rule may be applied to most varieties, and by selecting a few plants of each, and plunging them out in the borders, there is then a certainty of obtaining stock at the required season. There may perchance be some that read this who are very fond of a flower-garden, but have only one small house, and would be rather at a loss how to put in operation the above directions; but the difficulty is at once surmounted, if they have a common hand-glass. Then let the warmest and the most sunny part of the house be chosen, place the cuttings on a space sufficiently large to place over them the hand-glass. When the sun is out in the middle of the day, a shading of paper must be placed on the inside of the glass sufficient to cover the cuttings, when all the heat collected by the glass will be useful to aid in striking roots without making them flag. The shading may only be kept on for a few hours during the mid-day sun. By following the above details, a sufficient stock of plants may be *easily provided* for bedding purposes.

The following are a few of the best bedding varieties:

**Masterpiece*: fine large crimson, extra good habit, free bloomer, and a deeper richer colour than *Sultan*.

**Surprise*: large orange-crimson; fine flower, free bloomer.

**Superba*: orange and crimson, free bloomer, and compact.

**Amazon*: crimson maroon, rich and full flower.

**Loveliness*: good bright yellow, with a crimson blotch.

Mrs. Beecher Stowe: a good free-blooming pure yellow.

Model: rich brown, shading off to orange-yellow at the edges; good large flower; fine compact habit.

Magnificent: rich crimson, with a yellow cap; a large fine flower; free and good for bedding.

Crimson King: deeper crimson, and a great improvement on *Sultan*; robust habit, and free bloomer.

Brillante: bronzy-red; moderate-size flower.

Magnet: light brown, spotted with crimson, flower large, fine habit, and free bloomer.

Matchless: crimson self, a beautiful bright colour, and the best of the kind for bedding.

Golden Chain: fine yellow self; dwarf and fine.

Hero: a rich dark crimson; fine large flower.

Sultana: large yellow, deeply spotted in the throat; fine close compact growth.

Shankleyana: large orange crimson; fine for bedding.

Wellington Hero: golden yellow; free and good for bedding.

Candidate: rich orange yellow; free and fine.

Sultan: fine large crimson; rather a tall grower.

Tom Thumb : large rich crimson ; good for pot culture.

Aurantia-Multiflora : fine yellow ; dwarf, and free bloomer.

Phæbus : orange, with crimson spotting ; dwarf.

Kayti : a good dwarf early yellow.

Gem : crimson self ; small flower ; but free bloomer.

The above varieties are all the best at present in cultivation that can be recommended for bedding, and as they embrace so great a variety in colours of their different shades, they will furnish quite novelty sufficient in forming the different masses required in the flower-garden. The five varieties first-named are quite new,—and will, we are informed, be sent out in the coming spring ; the others are flowers that may be purchased at the various nurseries, at a small cost. A few of the last-named varieties have been in cultivation for some time ; and at present there are no others of similar colours, habit, &c., to supersede them. When there are, I will furnish particulars of them.

BALSAMS IN THREE STYLES OF GROWTH.

BY MR. GLENNY.

IT is very evident that there is a stir made in favour of this beautiful plant. The balsam is apt to draw, if it has heat, without sun ; therefore it should not be sown too early. But, as they can be bloomed in a very short time, it is not uncommon to sow at three or four different seasons. In April to begin, May for the general show, June twice, for succession. Nothing suits the balsam better than a good deep frame, a well-made hot-bed, and the box filled up all but six inches with tan, so that the pots may stand near the glass ; and if there be a good heat, the seed will be soon up. Sow the seed thinly and evenly over the surface of the pot, pan, or box used for the purpose, and sift or sprinkle the soil over, enough to well cover it. As soon as the plants are up, give air as freely as you can, without lowering the temperature below 60°. When they are strong enough, prick them out round the sides of pots, say two inches apart, so that there would be five or six in a four-inch pot, and more or less, as the pots are larger or smaller, it mattering but little what sized pot it is. Let the seed leaves be not more than two inches above the surface, and replace their pots in the hot-bed. As they grow up, sink the pots in the tan, to keep the plants from touching the glass ; but keep them as near as possible, to allow a trifle for growing. When the plants have rough leaves, repot them singly in four-inch pots, lowering them into the soil, so that the first, or seed-leaves, be not more than two inches from the surface, for the stem below the seed-leaf will have lengthened. So long as the pots can be sunk in the tan to allow of the plant growing without actually touching the glass, so long must they be sunk, and after that the frame must be raised, or another hot-bed be prepared, to give more room. As soon, however, as the roots begin to form round the sides of the four-inch pot, they must be removed to pots of six inches diameter, and be still lowered if necessary ; for as the balsam throws out new roots all up the

stem if it be sunk, the plant is improved rather than injured by sinking the stem ; but the seed-leaf should be kept an inch above the surface, even after its last shift. Those who have stoves, and can place the plants close to the light, save the trouble of a hot-bed. As soon as the middle stem shows flower, we have to decide what we are going to do. If we want very large plants, we must pick off the buds as fast as they come, until the size we require is attained. If we want handsome, and not large plants, we only pick off the buds from the middle stem, until there are buds on the side shoots, and thin out, so as to leave buds, nearly of a size, an inch or two apart all over. Meanwhile, as soon as one pot fills with roots, it should be shifted for larger. If, instead of large plants, we only want to produce monster flowers, we should, as soon as the buds are forward enough, in the first instance, to show whether they are very double, pick off all but four or five buds on the middle stem, and let them flower ; they will come as large as roses or camellias. But it is to be borne in mind, that the constant shift from one pot to another, as fast as they get filled with roots, must be attended to in all these methods of blooming them. The soil should be rich and light, and the watering regular, as they get dry. If you are always on the spot to see, they may be left till the leaves indicate flagging before they have water ; but when they do, the soil must be wetted all through. They are the better for occasional syringing, but they ought not to be wetted when in bloom. The house or pit may be wetted, so as to throw a dew over them, but syringing would unquestionably injure the flowers that are opened. Balsams might be grown well in the open air. Make a bed eighteen inches deep, and let the soil be one-third in quantity of well decomposed dung, the other the garden soil ; and if too stiff, mix sand with it. At the end of May, plant out those sown in April, and give them full two feet of room every way, Shade them from the hot sun when first put out, and they will grow even finer than half the potted plants.

[We saw Mr. Glenny's large collection of balsams at Fulham when in full bloom, and the superb-grown, robust specimens, with *extraordinary-sized* double flowers, very far exceeded any others we ever saw either in private establishments, nurseries, or at the floral exhibitions. Mr. Glenny, we see by advertisement, disposes of seeds from this celebrated collection.—Ed.]

TREATMENT OF CYCLAMENS.

BY THE FOREMAN OF A LONDON NURSERY.

NOTICING that a reader requests information on the management of these pretty blooming plants, I beg to inform the lady, that if by the sweet-scented *Cyclamen* she means the common *Cyclamen persicum*, white with a crimson eye, it is so easily cultivated, that the wonder rather is how she can have so mismanaged, without killing it, as to prevent it from flowering for three years. To grow it in perfection, the root should be placed just on the surface of a compost of equal

parts of sandy loam, leaf-mould, and rotten cow-dung, in a well drained pot, which diameter is about double that of the root itself, and placed in a light and airy situation, where it has little more than protection from frost. When it dies down, about June, the plant should be set aside in a cool place without water till the end of August, when it may be replanted as above. I have found the following plan answer well too. Soon after the plants die down, I turn them into the open border, and allow them to remain until the nights begin to be chilly, towards the end of September, and by this time they have made both leaves and flowers buds, which soon expand, when the roots are taken up and potted as above. If the plants are kept in a close damp or dark place, they will *never* flower.

The directions above apply nearly to all the genus, except that *C. coum* requires *peat*, and *C. repandum* is rather difficult to keep when dormant, and requires more air. The common sweet-scented Cyclamen, of South Europe, a rose-coloured species, prefers more sandy leaf-mould, and will bear anything except frost and a wet soil. It grows profusely in the Italian Islands, on the mossy banks which bound the vineyards. The new *C. macrophyllum*, with its immense large leaves and fine flowers, is easy of cultivation; it requires a compost of equal parts of peat, loam, and well rotted cow-dung,—in that it flourishes admirably. In merits a place in every greenhouse.

PROPAGATION OF CITRON, LEMON, AND ORANGE-TREES BY CUTTINGS.

BY MR. WILLIAM CLARKE, MARWOOD-HOUSE GARDENS, LANCASHIRE.

I beg leave to communicate to you my mode of propagating the Citron, Lemon, and Orange, and which I have practised for many years with great success, hoping it may be of service to some of your subscribers. I do it from single eyes with a leaf attached to each; I immerse the eye in the mould about half an inch deep, and they begin to make roots *very soon*, sending up a *strong shoot* at the same time. I have stuck fifty to a hundred in a large-sized pot, and scarce one of them failed, and of course a plant on its own bottom is preferable to a plant introduced on another stock, particularly so when dwarf bushes are desired. And I find such bloom and bear fruit in much greater profusion than the budded or grafted plants do. When potted, they should be watered liberally, and introduced into dung heat, and shaded. I find they strike most readily in a cucumber-bed, the pots plunged to their rims. The compost I generally use is rich loam and rotten dung, the pots well drained, and about three inches of soot at the bottom of the pot; if a little old mortar so much the better. I also find the *Dahlia* strike very freely from single eyes, and much the best mode for summer propagation when you wish to propagate valuable seedlings, as they make strong plants by autumn. I also find *Begonias* strike freely by the same method.

ON THE BIGNONIA VENUSTA.

BY JAMES SIMPSON, OF RUFFORD-HOUSE, NEAR NEWPORT.

BIGNONIA VENUSTA.—This very beautiful flowering hot-house climber well merits a place in every stove; scarcely any flower can equal its beauty and comeliness when in bloom; and those of the readers hereof who have not seen it growing, but have beheld its clusters of flowers in the shops of the central avenue of Covent-garden during autumn, winter, and spring, can confirm this testimony of its merits.

It is easy of cultivation, and if allowed to extend its roots in a bark pit, or in a border that derives warmth from some source, it grows *vigorously*, and will bloom in profusion, its charming, long, tube-shaped blossoms, borne in pendant clusters of from six to a dozen in each, are strikingly handsome. I have a plant growing in the corner of a bark pit, in a wooden case, with holes at the sides, out of which the roots push, and the branches are trained to a wire framework which is upon the front wall of the pit, the entire length of the house, and from October to April it blooms beautifully. I find it blooms better when trained crossways of the house than when *up the rafters*. I cut in the shoots after they have done blooming, so as to leave each about six inches long, give the plant rest by withholding an over supply of water, and remove the bark from the side of the case, about two-thirds its depth, sliding down another piece of wood in front of the case, which leaves a space of an inch, and keeps the roots from being heated by the bark; but early in August I remove it, water freely, and push the bark to the case; the plant soon pushes, and giving it manure water every fourth watering of the soil causes it to grow vigorously and bloom in profusion. The flowers are of a handsome yellow-buff colour.

It is easily increased by cuttings of the young shoots when about five inches long, inserting them in equal parts of silver sand and loam, and plunging the pot where it will have a gentle heat.

I have seen plants flourish admirably when grown in a bed of soil in the stove, where the roots had a small degree of warmth. Also grown in a large pot, and trained *round* a pyramidal-shaped wire frame, the pot being placed upon a wooden trellis which was on a warm flue. One plant I recently saw that had been planted in a border in a stove but three years, which, being regularly trained, covered a space of 600 superficial feet against the trellis of a back wall, and was literally laden with its clusters of flowers. It ought to be grown in every stove, warm conservatory, or greenhouse. It can be procured, too, at a trifling cost.

HINTS WORTH THE ATTENTION OF CULTIVATORS OF FLOWERS.

BY A BOTANIST.

AND first, in reference to those *principal parts* of a plant, the root and leaves. By aid of the root alone it is that a tree or any plant is enabled to keep its right position in the ground; and the more the

head spreads, so much more do the roots : so that, in fact, there is kept up a kind of balance between the part above and the part below ground. Again, it is from the roots alone that the plant looks for sustenance; for it is not enabled to do as we or other animals can, run about to seek our own wants; but as it is stationary, so it depends upon the roots and its spongelets for drawing to it all the nourishment that can be found within its reach. Again, roots perform the office of throwing out all the parts taken in by them from which no nourishment can be derived. It is a singular fact, that they are just as careful and anxious to avoid the light as the leaves and young shoots are to turn to it. But the leaves are nearly of as much importance to a plant as the roots, for until the bud has actually burst into leaf no growth can take place; and when the leaf is formed, it is there that the sap is turned into pulp. In the *dark*, leaves, like our lungs, take in oxygen from the air, and part with a portion of the carbonic acid gas contained in the sap. In the *light*, the sap on the upper surface of the leaf parts with the oxygen contained in the carbonic acid gas, and as the oxygen goes off, the carbon remains, while the sap, previously little less fluid than water, is converted into a sort of pulp, a considerable portion of which consists of carbon. The high importance of leaves becomes thus manifest; and nothing will more enfeeble a plant than taking off its leaves in the growing season, though they are no longer necessary during the cessation of growth in the winter. And we must bear in mind that their fall previous to winter is not caused by cold, but in consequence of the vessels at the root of the leaf-stalk becoming gradually rigid, so as to prevent the rise of sap, or at least the return of pulp.

And now I shall proceed with such things as tend to give life and health to plants; namely, atmospheric air, carbonic acid gas, and humic acid, not forgetting one principal support, water, which is composed of two gases, oxygen and hydrogen, which it appears plants have the power of decomposing. The more water is mixed with the air when given to plants, the more beneficial it is to them, because it is by that means enabled to obtain large portions of those gases necessary to their life; hence the smaller the holes in the rose of a watering-pot are, the finer the water falls on the plants, and the more atmospheric air it is enabled to obtain; it is this alone which makes river-water, when running a long course, better for plants than that which has been motionless for a long time, such as ponds and lakes, whose waters only contain a small portion of air; but this does not apply so well to actually stagnant water found in ditches, &c., whose deficiency of atmospheric air is made up by the greater portion of carbonic acid derived from decaying animal and vegetable substances found generally in such places.

If plants could live without a *constant* supply of water, then rain would, even during the summer months, be a sufficient support to them, as its passing through the air causes it to give more nourishment than we can ever give by the use of the watering-pot or engine. The air itself always contains more or less water in the shape of an invisible vapour, which is always in proportion to the temperature; the warmer the air, the more moisture it contains.

Carbonic acid gas is another important thing to the life of plants, and is found in great abundance in all animal and vegetable substances in a state of putrefaction, which, if mixed with the soil, will be taken up by the spongelets of plants, and is passed into the main body; otherwise what would be the use of applying dung to plants, which of itself contains a great deal of carbonic acid gas? Carbonic acid is heavier than air, and, consequently, when any rain falls from the carbon being close to the earth, a great quantity is washed into the soil.

To describe what any of the gases are would be beyond my purpose, and the limits your work could give; so that I shall not attempt to enter more minutely upon them, and, therefore, proceed to the only acid of itself beneficial to plants,—viz., humic acid, which may be found in great abundance in the water which drains from a dunghill; but it is better generally not to apply it to plants without diluting it, as sometimes, from salts contained in the dung, it proves injurious. As it flows upwards it becomes thicker, and in fact that is the only difference between it and water, excepting some small matter collected before entering the plant; as it rises it passes into the leaves, where, on the *upper side only*, by the action of light and heat, it is turned into pulp, and, passing into the leaf-stalks, and so into the root, throws out the refuse material, from which no nourishment can be derived.

THE PLEASURE-GARDEN OF BLOSSOMING TREES AND SHRUBS.

BY CLERICUS.

IN my remarks upon a pleasure garden of blossoming trees and shrubs, I have nothing terrible to present to the reader; but attempt to

“Show Nature’s form in smiling beauty drest,
And call mankind to view her and be blest,”

and which I hope at *this season* of the year will tend to produce pleasurable sensations only. To me it seems hardly possible for any mind to be so debased as to be insensible to the effects of those vegetable charms, which ought to become more endeared to us as our age and reflection increase. A more delightful cabinet of natural history can scarcely be formed than this garden affords, even when unadorned with exotic beauties. It offers matter for contemplation of the most agreeable kind which varies still as seasons revolve; and as every tree, shrub, and herbaceous plant has its peculiar inhabitants, we have at the same time a collection of musical animals and vegetable wonders there, that are sufficient to occupy all the leisure which our economical duties allow us. As years increase, a taste for most pleasures in general diminishes. Those of the court become fatiguing, the charms of the table appear to lessen, but the fondness for a garden increases, and is almost the only *earthly* pleasure that does increase. Let us not, then, neglect to cultivate a taste for what will form the delight and amuse-

ment of the latter period of life. Every tree, or shrub, or flower, we plant adds to the entertainment we prepare for future years, for ourselves, our friends, and successors.

The introduction of a useful or an ornamental plant into our island is justly considered an important service to our country ; for it is impossible to calculate on the benefits that may be derived through such means, when the qualities of the vegetable are ascertained, and their virtues known. Even what is introduced and planted merely from curiosity or ornament seems to unite us to the nations from whence it comes. It bestows on us a share of the blessings of other climates, and affords us a portion of the smiles of a more genial sun. When, therefore, we dwell on the beauty of exotic trees and shrubs, we wish to be understood as expressing our gratitude to those who have enriched our land with additional charms, and more fully displayed Nature to our eyes, and not as disregarding the plants that are indigenous to our soil. I am aware that many an Englishman has sighed under the shade of the banana for a sight of his native banks, where the primrose sparkles through the hazel-hedge, and the violet peeps so modestly. The plants of our country recall the idea of it in the most forcible manner wherever we meet them. They are often the first objects that attract the attention of those who have been long absent from their native fields, and who, on their return, pour out the genuine effusions of joy on beholding the village-elm, the well-known oak, or the unchanged yew, whose antiquity is equal to the church it shades. We are told of a young Indian Pontaveri, from Otaheite, who in the midst of the splendour of Paris, regretting the simple beauty of his native island, sprang forward at the unexpected sight of a banana tree in the Jardin des Plantes, embraced it, while his eyes were bathed in tears, and exclaiming with a voice of joy, "Ah! tree of my country!" seemed, by a delightful illusion of sensibility, to imagine himself for a moment transported to the land which gave him birth.

We seem, as it were for an instant, to go back to the delights of infancy, when, on each succeeding spring, we visit the meadows covered with cowslips, which afforded us so many happy hours in childhood, as we formed balls of their blossoms. Then the playful girl, bedecked with wreaths and necklaces of daisies, led her little swain in chains formed of the milky flower-stalks of the dandelion ; but who at the sight of a butterfly burst the brittle bonds, and scampered away, to return, perhaps, a few years after sighing, in fetters not so visible, but more binding.

There is no part of Nature's works more interesting than flowers. They seem intended for the embellishment of the fair, and for the ornament of the spot where they tread. Their sweet perfumes have such influence over all our sensations, that in the midst of flowering plants the most acute grief generally gives way to sweeter feelings. When our home and domestic companions are encompassed by the pretty garden, our situation approaches nearest to a *terrestrial* paradise. Is it not, then, to a rational mind a source of inexhaustible delight and instruction, where each season brings new joy, and every morning a fresh harvest of delightful sweets? Subjects for new thoughts and con-

templations present themselves to our view, and even the most dreary months still supply cause of admiration, and discover a world full of wonders; for

"E'en Winter oft has seen it gay,
With fretted frost-work, spangled o'er,
While pendants droop'd from every spray,
And crimson budlets told once more
That Spring would all its charms restore."

It is not to advanced age alone that the garden offers its placid delights. Every stage of life, from the cradle to the grave, is attracted by its charms. The infant is ready to spring from its nurse's arms, allured by the gay colours which flowers exhibit.

They form the most innocent toy of childhood, and the cultivation of them is generally its first labour, whilst their presentation often explains the passion of youth. The happy maiden loves to entwine them in her locks, and the fond parents delight to see their child mimic their beauties with the pencil.

The representation of flowers is the proper style of drawing for the softer sex. Flowers are the peculiar province of the fair, and the nearer their imitation approaches to Nature, the more it delights us; which paintings of massacres and agony certainly cannot. The beauty and grace that may be displayed in grouping flowers, united with the gaiety of their colours and the harmony of their tints, are well worthy the attention of those who were born to render life delightful. The neatness, nicety, and patience required in finishing flower-pieces, seem to demand the delicate hand of a female artist.

The description, by Moses, of the garden of Eden, the first abode of first-created man, formed the outlines which Milton has so splendidly enriched with all the imagery of poetry. From this have been copied the plantation, the park, the shrubbery, and flower-garden, so justly the pride of the nation, and so properly the abode of its beauty. The Greeks devoted their terrestrial groves, as well as their celestial gardens, to the gods; but the Mahometans reserve their flowery lawns and umbrageous bowers for scenes of future bliss to mortal believers. We, however, more prudent, should wish to collect all such blessings, which bounteous Nature has scattered over the globe, and in this present life form a modern garden worthy and deserving of our constant admiration.

(*To be completed in our next.*)

MODELS OF FLOWERS IN WAX.

BY MADAME MORIEN, OF PARIS.

DURING the last seven years I have been a monthly purchaser of two numbers of your useful Magazine of flowers. Noticing that a correspondent asks for instruction on the constructing of wax models of flowers, I send particulars of the process I have pursued (being a dealer in such productions of most of the finest flowers, and dispose of many thousands every year) most successfully for ten years, hoping the details will meet the requirements of the lady inquirer.

I have therefore to state, that it is requisite to have a piece of wire,

about three inches long, pointed at one end, and with a round knob of sealing-wax, about a quarter of an inch diameter, at the other, so that it resembles a very large pin, and three or four small smooth rods of wood of different sizes; these, with a penknife or scissors, are the only tools; have also some very thin tin or brass to cut up into patterns, some wire of different sizes covered with silk for stems, and some sheets of wax of requisite colours; thus furnished, set to work. Take a natural flower, as, for example, a Primrose, which consists of a green cup or calyx, inside which are five petals, or straw-coloured flower leaves, and in the centre five stamens. Pluck the flower to pieces, and after flattening each part either by putting it between the leaves of a book, or under a warm flat iron, cut out of the thin tin patterns exactly similar to the calyx (allowing here a little to fold over when bent afterwards to the proper shape) and one of the petals; then laying those upon the wax lengthwise of the sheets, cut out the calyx and the five petals. Take a piece of proper-sized wire for the stalk, and cut five narrow thread-like strips of dark yellow wax for the centre, which fix on the top of the wire by the hard pressure of the thumb and finger; these being on regular and firm, fasten on one of the petals in the same manner by pressure; then a second petal, a third, fourth, and fifth, putting them regularly round and bending each where it joins the stem outwards, so that when completed the flower shall be flat. If the wax should be brittle, hold it in the palm of the hand for a minute; the warmth of this will render it so pliant as to yield readily to any pressure given to it. The petals being fixed, warm the calyx by the hand, and form it into a proper shape on the end of one of the little round and smooth rods of wood before mentioned; slip it on by the lower end of the stalk, and when in its proper position pinch it tightly round the end, which will fix the whole together, and the flower will be complete, except a few touches of a darker yellow near the centre, on the petals; this may be done either with oil colours or water-colours mixed with ox-gall.

All this is easy; and there are many flowers that require no more care than this; such, for example, as the Violet, the Snowdrop, the Crocus, the Polyanthus, the Narcissus, the Hyacinth, the Tulip, the Laburnum flower, the Pink, &c. In some of these, however, there are several florets; each must be made separately, and the thin wires of each tied together by green silk.

The petals of the *Ranunculus* and Tulip are hollow; so they are in the Rose, and usually in the Crocus; their shape is given to them easily by the finger thus—hold the wax petal in the hand till it is pliable, then roll the central part of it with the sealing-wax end of the wire pin, which will, of course, expand it somewhat; then press it with the point of the fingers into the hollow of the hand, which will make it of the requisite concave form. Sometimes the petals should appear rough and corrugated, as in *Holyoak*, the *Gum-cistus*, and the red Poppy; roll it well so as to be very thin and warm; then crumple it up somewhat by the hand, and open it out into its proper form again, when, if done well, it will be ready for use. If a part of the flower resembles a cup, as the centre of the *Narcissus*, it must be formed with the pin as before, the

piece of wax being of the size of the cup when cut open. In making a *Convolvulus*, it would be in vain to attempt forming it out of a round or flat piece of wax; the original flower must be cut down on one side, then laid out to flatten, the wax cut of the proper size, and folded carefully over a mould which has been soaking in milk-warm water, the mould previously made by pouring plaster of Paris carefully into a real flower of the same species. Some persons make the *Convolvulus* flower in five sections, and putting these on the mould so that the edges unite, join them together very carefully, and hide the joint on the inside of the flower by placing over them five strips of wax differently coloured, to imitate the rays seen upon the disc; but I pursue the former mode.

Dahlias, *Chrysanthemums*, and other flowers that are quilled, that is, have their petals bent in at their edges, must have each separate petal rolled by one of the sealing-wax knobs, as for other things, and while warm, the edges bent or rolled up with the fingers into proper shape.

A large *Dahlia* requires about seven sheets of wax, and requires petals of five or six sizes for different parts of the flower, and in the centre of it a lump of green wax, made of the refuse species, of about half an inch in diameter. Roses, and other delicately-tinted flowers, are mostly made of white wax, tinted by powder colours, put on with a short-haired, rather hard brush, such as is used for oriental tinting.

Flowers that are party-coloured or streaked must have the streaks painted upon them. Single flowers will require stamens in their centres; these, if very small or so hidden as not to be conspicuous, may be made of narrow strips of wax of proper colour, which will be much improved in appearance if, when fixed, the ends of them be dipped in gum-water, and fine crumbs of bread, mixed with turmeric, be sifted upon them. If the stamens are large, they must be formed separately upon fine wires, by moulding between the thumb and finger some of the refuse wax of proper colour, dipping each afterwards, if necessary, in a powder of the natural colour, as, in dark yellow for the *Lily*, black for the *Tulip*, &c. The leaves that are attached to the various groups are almost all of cambric, the manufacture of the artificial flower-makers. Any other information which may be required, and I can supply, I shall have pleasure in giving.

ARRANGEMENT OF BEDDING PLANTS TO PRODUCE THE BEST CONTRAST IN COLOURS.

BY ADELAIDE, OF SOUTH MIMMS, HERTS.

To demonstrate the theory of colours, a circular card may be divided into seven compartments, by lines drawn from the centre to the circumference, one compartment being painted red, the next orange, the third yellow, the fourth green, the fifth blue, the sixth purple, the seventh violet. Let water-colours or patterns of ribbon, of each of these respective colours, be procured, and arranged in the enumerated order. It will be found, that any one of these colours is producible, by due admixture of the two adjacent colours. The first and third, red paint mixed with yellow, produce the second colour, orange. The second

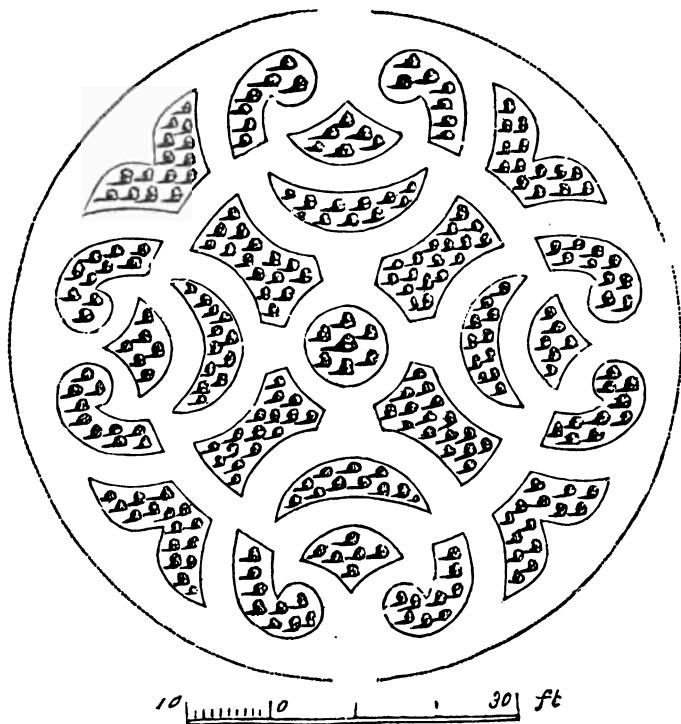
and fourth, orange mixed with green, produce the third, yellow; the third and fifth, yellow and blue, generate green, the fourth colour; that and the sixth form the fifth, blue; the fifth and seventh, violet, create the sixth, purple; the sixth and the first, red, constitute the seventh, violet; the seventh and second, orange, terminate in the first, red. What, then, is the necessary conclusion, but that in the order of prismatic colours, adjacent colours are inharmonious; and that harmony results only from union of two colours, distant in order by one intermediate tint. The principle productive of harmony being thus discovered, may receive confirmation, by experiment with ribbons of different colours blended, or with sewing silks twisted, in the preceding order of arrangement. Yet, beauty resulting not only from harmony, but also from contrast, the next inquiry is, from what principle to produce the latter effect. It is discoverable from the following experiment. To patterns of ribbons or silk, of the seven preceding colours, let white and black be added; and all be placed in a perpendicular line, the white above the red, the black beneath the violet, adapting the numbers to the altered arrangement, the white being denominated one, the red two, and so on, the violet being marked eight, and the black nine. By advancing black to the side of white, or as it is accounted the absorption or absence of all colours to the accumulation or presence of all, the strongest possible contrast is produced. Violet and purple will also contrast with white, in decreasing ratio; while the remaining colours produce a very inferior degree of contrast, by no means eligible from their approximation to white, in graduated reflection of light. On a similar principle, the best contrast to black, next to white, is red, as the colours ranking first of the seven in order of refraction, therefore first in power of reflection; orange is an inferior contrast, but yellow, blue, purple, or violet, from graduated absorption of light, present no contrast to its entire absorption, black. In the same manner red receives no contrast from the two nearest colours in the prismatic gradation, orange or yellow, but from the semi-colour green; it admits the lowest contrast in blue, higher in purple, or violet, and the highest, as already remarked, in black. The decisive inference then is, that contrast is not producible without passing over two prismatic colours at least. Such being fixed laws, constituting the primary principles of the theory of colours, and demonstrable by experiment multifarious and conclusive, their application to landscape gardening and the disposing of flowers in the flower-garden, &c., involves not the slightest difficulty, and solves numerous phenomena. Why, for instance, does verdure, or why do shrubs, supply the best relief to gaudy flowers? On account of excellent contrast, green being a sober colour intermediate between the deeper and brighter tints, consequently affording a foil to all. Why is snow injurious to the effect of foliage, or flowers, of every graduated tint? On account of its glaring whiteness, supplying neither contrast nor harmony, white entering into the composition of every shade of tint, and particularly being productive of semi-colours; consequently, being a component principle, when uncombined it can neither harmonise nor contrast with itself. Why does the olive tint of the expanding oak-leaf offend the eye of taste? Because, its being composed of green

in combination with yellow, the component principle can neither harmonise nor contrast with itself, in a simple uncompounded tint, in the surrounding grass, or foliage of more forward trees. Why does the verdant herbage of spring produce inferior picturesque effect, in grounds ornamented with trees, than the sterile grass of early autumn, consequent on mowing? Because, spring grass and foliage are gradations of one and the same colours; consequently, in whatever variety of gradation, the diversified tints of any colour, neither harmonising nor contrasting, cannot possibly be productive of picturesque effects. Contrariant is the effect of sterile grass, on account of its russet tint, like ripened corn, presenting advantageous contrast; russet being a semi-colour, uncompounded of green. Countless natural phenomena, with their solutions, might be multiplied, illustrative of the theory of colours being of practical utility to those who are accustomed to ornament the flower-garden (in whole or part) on the bedding system, and desirous that the best effect be produced.

In another Number I shall have more to state on ornamenting the flower-garden.

PLANS OF FLOWER-GARDENS.

No. 13.—By T. RUTGER, Esq.



The circular design, herewith presented, is intended for a lady's parterre, supposed to be laid out on a secluded lawn, and approached through a shrubbery, so as to render it private for those who may prefer seclusion. A rustic covered seat, or two, might be placed in the shrubbery adjoining, to afford shelter or shade.

The beds are supposed to have box, or some other material, for edgings, with gravel between.



ANNUALS.—If seed was omitted sowing in autumn for early blooming plants next spring, now sow some in small pots, place them in a frame free from frost, and turn out into beds, &c., early in April. Sow *Auricula* and *Polyanthus* in pans, and place in a shady part of a cool frame. Prune *Roses*, and sprinkle the heads over freely with soot and lime liquid, as it will destroy moss or insects, and preserve them from the ravages of such enemies in summer. Plant *Roses* and *Hollyhocks* immediately, or they will not bloom well this season. *Carnations*, &c., in pots must have air liberally; if attacked by mildew, dust over and under with sulphur, also protect from severe frost and excess of rain. Prepare compost for the show-plants to grow in. *Pinks* and *Pansies* in beds must have the sod pressed closely round the main stem, and a number of sticks be pricked among the shoots, or they must be secured by pegs, so they are not twisted by the wind. A low hedge, formed of yew or fir branches along the sides will also be beneficial as a protection from wind. *Pinks*, *Carnations*, &c., sprinkled over with soot, will preserve them from hares, rabbits, and snails. *Tulips* and *Hyacinths* in beds protect from severe frost; an inverted garden-pot will do. Also protect the bed of *Ranunculus*, *Anemone*, &c., which were planted in autumn. *Gladioluses* to succeed the autumn planted should now be planted; they will bloom to the end of autumn. *Verbenas* guard against damp, mildew, &c.: dry air and dust, with sulphur, attend to. *Tulips*, have the soil closely pressed around the plant. Fresh loam must be added to all flower-beds; it promotes an abundance of flowers; also give well-rotted manure or leaf mould. Divide large plants of the herbaceous class of the borders, replant, &c. *Shrubs*, layers of most kinds may now be made. *Lobelias*, of the erect growing class, must be guarded from an excess of wet; but towards the end of the month place them in a rather warmer situation, and gradually encourage the offsets to grow, in order to divide and pot singly in February.

IN THE FORCING STOVE.

In order to have early, or very large plants of *Cockscomb*, *Globe Amaranthus*, *Balsams*, *Salpiglossis*, &c., sow seeds by the middle of the month; also a portion of *Ten Week* and *German Stocks* in pots or slight hot-bed; also other handsome half-hardy kinds or flowers to bloom early. *Amaryllis*, *Sprekelias*, &c., now repot; also begin to push, (*gradually*) for *early bloom*, some of the *Achimenes*, *Gloxinias*, *Gesneras*, &c., and pot singly when the plants are an inch high. *Bedding Plants*, any that have fresh shoots, and plants are required of them, take off cuttings, strike, &c.; or place the old plants in higher temperature, to push them into growth, such as *Fuchsias*, *Salvias*, *Heliotropes*, *Anagallis*, *Hemimeris*, *Cupheas*, *Geraniums*, &c. The *Bouvardias* are best increased by the roots; cut them into pieces an inch long, and cover them half an inch in silver-sand, place them where they get bottom heat, and they soon push shoots; then pot singly. Sow *Mignonette* in pots for early bloom. The autumn-sown plants must have only *dry* and *mild* air.

IN THE GREENHOUSE, &c.

Never give fire-heat to *Ericas*, as long as you can preserve them from frost, and except in *very windy* or *foggy* weather; let them, as well as *Epacris*, *Azaleas*, and indeed all the class of *New Holland* plants, have a free supply of air, allowing the gentle winds to blow upon them. Let *watering* be done in the *morning*, so that *damp* may be dried up. Damp must be guarded against; apply a gentle fire to dry it up, if not otherwise done. *Cinerarias* repot, fumigate, if one green fly appears; use sulphur if mildew attack. *Fuchsias* now prune in, and repot the large plants which are required for early bloom. *Tropæolum tricolorum* and the other *tuberous-rooted* must now be potted. *Camellias*, keep the entire ball of soil regularly moist, or the flower-buds will drop: thin the crowded buds. Pot *Alstroemerias*, *Ixias*, and *Oxalis* with any other greenhouse bulbous-rooted plants. *Pelargoniums*: now spread the branches outwards, in order to properly form the plant, bringing some as low as the rim of the pot. Cuttings of *Azaleas* strike root much more freely early in the spring than later on, therefore *now* place in a gentle heat any stock plant, in order to obtain the *half-ripened* shoots by the proper period, such being best for rooting in silver-sand, with bottom heat.

MISCELLANEOUS SECTION.

THE OLD DOUBLE YELLOW ROSE.—Complaints have often been made, that the flower-buds either drop off just before the time they should open, or if they expand, the flowers are defective in form. Now, I have a large plant in my garden, which has bloomed *in perfection* every season during sixteen years, without having one defective flower. The plant grows in a good loamy soil, about half a yard deep, upon a rocky-stone bottom. It was planted in the year 1830; but previous to my possessing the premises, it had been neglected as to any pruning, and was in a *wild state*. I had it pruned, and trained to the south aspected wall, at the foot of which it was growing. I cut away all the foreright shoots, that could not be brought against the wall, and thus thinned in November, I had it arranged, and at the same time gave the

border a good dressing of old rotted cow-manure. This addition of manure in November I have continued ever since. When the shoots pushed the following summer, I treated the plant the same as is done with the Peach-tree; namely, rubbed off or cut clean away all extra new shoots, retaining as many as would duly furnish the plant with new wood, like the Peach-tree, and they were properly secured to the wall. The following November I pruned back these new shoots, to about half their length, and the *new* shoots which pushed from them supplied me with a profusion of fine Roses. This kind of summer and winter regulation I have practised for sixteen years, with perfect success. The plant covers a space of brick wall eight yards long by ten feet high, and blooms in every part of it. I have a basin formed (five feet each way from the stem) with the surface soil, and lay six inches thickness of good (somewhat mulchy) stable-dung; and upon this I pour, once a week, or in very dry weather twice, as much *soft pond-water* as will sink to the depth of the border-soil. By this attention, I am amply repaid by the fine display of a profusion of its rich yellow double flowers. It is easily increased by layers. I have a plant in the open ground, grown as a bush, and I have raised great numbers by this method; and when rooted, I pot them, or plant in the open warm border. I have sold or given hundreds of plants.

BRIEF REMARKS.

HORTICULTURAL SOCIETY MEETING, Dec. 6th.—This was what is termed the Chrysanthemum show-day. The following were the best collections:—The best was a group of Pompones (or Minimas) from Mr. Robinson, gardener to J. Simpson, Esq., of Thames Bank, Pimlico. As regards good cultivation, nothing could possibly surpass the varieties shown, being in perfect health, dwarf and bushy, and literally covered with bloom. The sorts were Mignonette, brownish-yellow; Daphne, purple; Nelly, white, with a yellow centre; La Gitana, bluish-white; Atropos, brownish-red; and Drine Drine, yellow. A Knightian Medal was awarded. A second collection of large flowered sorts came from Mr. Giffins, gardener to P. Johnson, Esq., of Church-street, Stoke Newington. It consisted of extremely large plants, which, although showy, were what gardeners term “leggy,” and also very much sticked. The kinds were Phidias, General Negrier, Christine, Pilot, Annie Salter, and Madame Camerson. A Banksian Medal was awarded. Messrs. E. G. Henderson, of the Wellington-road Nursery, St. John’s-wood, furnished a group of Chrysanthemums, but they arrived too late for competition. The most remarkable among them was perhaps President Decaisne, a reddish-brown sort, with a light centre, the two colours in the same bloom, producing a charming contrast. Marcian, a medium-sized kind, with pink petals, fading off at their points to white, thereby giving the flower the appearance of being striped or mottled; Jonas, a small-flowered sort, with reddish-brown petals, tipped with yellow; and Mdlla. Angelique Richard, a medium-sized sort, with compact heads of flowers, nearly white in the centre, with a pink rim round the circumference of each bloom, and altogether very pretty. Messrs. Chandler, of Vauxhall, sent a collection not for competition. It consisted of Alveoliflorum, Justine Tessier, Junon, La Fiancée, Daphne, Fenella, Graziella, La Rousseée, Mignonette, La Sapagon, Atropos, and Nelly. These were fine kinds of Pompons. Mr. Spary, of Brighton, sent a plant of Queen of Gipsies, with a view to exhibit a peculiar mode of training, which, when carried well out, as in the present instance, has a neat effect. Mr. Spary stated that the plant was struck in March last, in a 3-inch pot, and had been kept in a cold frame till the end of April, when it was shifted into a 6-inch pot, pinching the top off and exposing it to the open air. In June it was shifted into an 8-inch pot, when training was commenced by placing a horizontal wire trellis on the pot, so as to project about six inches beyond the rim, dividing the shoots, and leading the longest to the outside, keeping the next lengths to fill in between, and the shortest for the middle. These were tied as they progressed every week, until July; then each of the

shoots was topped, and as soon as the plant began to break it was again shifted into a 9-inch pot. When the laterals were long enough, they were then regulated and tied, so as to fill and form the plant until September, when the centre shoots were allowed to turn up, keeping the outside ones tied down a fortnight longer, to make them shorter, so as to make the plant assume the form of a cone. When it was set for bloom it was again shifted into a larger pot, to strengthen the flowers and prolong its growth. The plant was then removed to the greenhouse to bloom. The Pompon varieties are admirably calculated for this style of growth, but they require autumn-struck plants to carry the plan out to perfection. Plants managed in this way are dwarf and compact, and very suitable for front shelves or table stands in conservatories or greenhouses.

THE STOKES NEWINGTON CHRYSANTHEMUM EXHIBITION FOR 1853 was held on November 17th, and the numerous company of visitors were highly gratified with the well-grown plants and the superb-cut blooms shown, more especially so with the beautiful Pompoms (or Minimas). Mr. Robinson's plants of this class were very superb specimens, being nearly two feet high, clothed with fine foliage down to the rim of the pot, and each of the bushy plants about two feet through, adorned with a fine display of their lovely little flowers. Of the large-flowered class Mr. James's plants were most superbly grown, and the flowers, in size, like small Double Dahlias, highly meriting the award bestowed. The judges awarded prizes to the following:

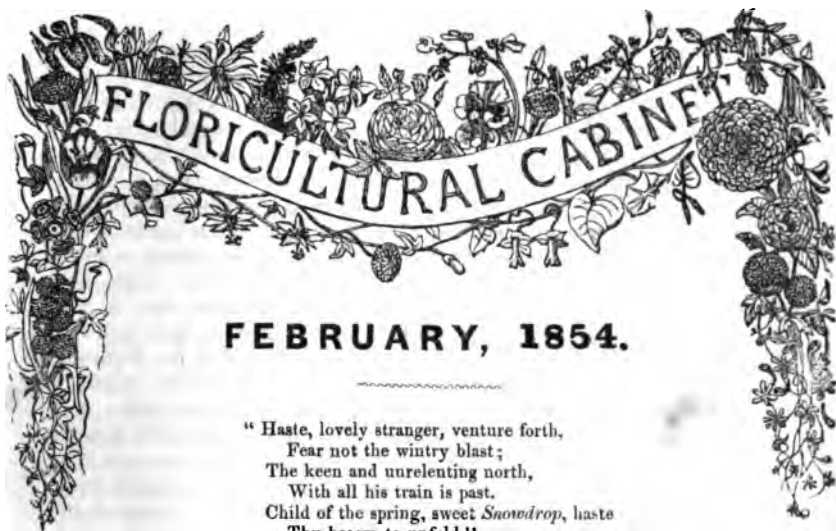
Six *Plants*, in 11-inch pots: 1st. Silver Cup.—Mr. James, Stoke Newington, with Pilot, Mount Etna, Christine, Defiance, Madame Camerson, Queen of England. 2nd. Mr. Scruby, Mount Etna, Defiance, Annie Salter, Vesta, Christine, Queen of England. 3rd. Mr. Holmes, Hackney, for Defiance, Christine, Mount Etna, Annie Salter, Vesta, and Pilot. *Pompoms*, in 8-inch pots: 1st. Mr. Robinson, Pimlico, with Drine Drine (yellow, very fine), Bijou de Horticulture (creamy white, inclining to yellow towards the centre), Autumna (bronze), Solfaterre (bright yellow), Atropus (crimson), Cedo nulli (blush white). 2nd. Mr. Ivery, President Decaisne, Solfaterre, Autumna, Minon (blush white), Drine Drine, Cedo nulli. 3rd. Mr. Scruby, Graziella, Autumna, President Decaisne, Model (creamy white), Le Nain Bebe, Bijou de Horticulture. *Pompoms*, in 32's: 1st. Mr. Robinson, Fenella (golden yellow), Minon, La Pactole (bronze yellow), Daphne (rosy-purple), Model, Drine Drine. 2nd. Mr. Holmes, Drine Drine, Autumna, Model, Sacramento (yellow), President Decaisne, and Fenella. A finely-bloomed collection of Pompoms was exhibited by Mr. E. Spary, Brighton, trained to trellises, after the manner of trained Verbenas, lying flat upon the pot, producing a very pleasing and novel effect. These were also well-bloomed; and great credit is due to Mr. Spary for producing plants in such condition so far from where they were grown; but we give the preference to the natural style, as exemplified in Mr. Robinson's and Mr. James's plants. Twenty-four *Cut Blooms*: 1st. Mr. Wortley, Queen of England, Cyclops, Madame Audry, Formosum, Dupont de l'Eure, Campestroni, Golden Cluster, Lycius, Duke, Plutus, Defiance, Rabalais, Annie Salter, Pio Nono, Vesta, Nonpareil, Rosa, Mystica, Phidias. 2nd. Mr. Sanderson, Beauty, Queen of England, Golden Cluster, Beauty, Defiance, Phidias, Queen of England, Golden Cluster, Goliath, King, Alcibiades, Racine, The Warden, Vesta, Warden, Goliath, Rosa Mystica, Aristides, Formosum, Madame Corbey, Christine, Dupont de l'Eure, Admiral, Rosa Mystica. Twelve *Blooms*: 1st. Mr. James, Queen of England, Regina, Beauty, King, Christopher Colombe, Rosa Mystica, Warden, Leon Leguay, Plutus, Dupont de l'Eure, Lysius, Formosum. 2nd. Mr. E. Sanderson, Beauty, Queen of England, Clustered Yellow, Goliath, Warden, Dupont de l'Eure, Defiance, Themis Formosum, Pio Nono, Plutus, Rosa Mystica. Six *Blooms*: 1st. Mr. E. Sanderson, Clustered Yellow, Goliath, Queen of England, Defiance, Beauty, and Warden. 2nd. Mr. James, Beauty, Queen of England, King, Regina, Leon Leguay, and Plutus. 3rd. Mr. Hutton, Golden Cluster, Beauty, Nonpareil, Dupont de l'Eure, Madame Audry, Plutus. The finest specimens of cut flowers were Queen of England, Beauty, Dupont de l'Eure, Defiance, Pius IX., Plutus, Vesta, and Themis.

A NEW MAGNIFICENT CONIFEROUS EVERGREEN-TREE.—Messrs. Veitch's plant-collector, Mr. Lobb, has recently returned to this country, and brought, along with many other valuable things, a living plant and some seeds, of what may justly be termed the monarch of the Californian forests. It is an evergreen with foliage resembling that of the Cypress, of a pale grass-green. It there grows from 250 to 320 feet high, and the main trunk from 10 to 20 feet (or more) in diameter. What a tree is this, the girth of the trunk of which (at 5 feet from the ground) is more than twenty yards, and its height upwards of one hundred yards! It is supposed to be quite hardy in our own country. We have seen the living specimen, and shall give additional descriptive particulars in our next Number.—EDITOR.





Skimmia Japonica.



ILLUSTRATIONS.

SKIMMIA JAPONICA.

THIS very handsome *evergreen-shrub* is a native of Japan, where it grows on *mountains* about Stangasaki. It is so much esteemed by the Chinese, as well as the Japanese, that though a native, it is *cultivated* in their gardens, being not only beautiful, but the flowers have a peculiar *delicious fragrance*, much like those of the celebrated *Daphne odora* and *Olea fragrans*. Dr. Siebold, whilst in Japan, wrote about it, and stated, "The *evergreen* and *shining* leaves, the clusters of numerous and graceful flowers which all the ends of the branches produce from the beginning of spring, their perfume, and at the close of autumn the beautiful scarlet fruits, fully justify the rank which this charming shrub maintains as a *decorative* plant. It forms a neat bush, from three to four feet high, rarely beyond that, everywhere smooth and everywhere aromatic when bruised."

Mr. Fortune introduced this pretty shrub into England to Messrs. Standish and Noble's nursery at Bagshot. He remarks upon it: "This fine new evergreen shrub was discovered by me in the winter of 1848, and introduced into England in 1849. I met with it in a nursery near Shanghai, in China, and it was *the rarest and most prized plant* of the collection to which it belonged. The nurseryman told me that it was brought to him from a *high mountain* in the interior, named Wang-shan, and consequently the plant is called by the Chinese the Wang-shan-Kwei. The last term was given it on account of the fragrance of its flowers, which the Chinese consider as sweet as the *Kwei-wha*, or

Olea fragrans. These scented flowers are produced in great profusion in early spring, and are succeeded by bunches of bright red berries, like those of the English Holly. My own opinion is, that this fine bush will prove perfectly hardy in England. It cares nothing for the 'cold winds and sharp frosts' about Shanghae, and, no doubt, endures more on the inland mountains, where it is found wild, than in places nearer the coast." Further, he adds: "It will, no doubt, form, in a few years, one of the most attractive 'winter plants' our gardens can boast of. Fancy, if you can, our borders or parterres dotted in mid-winter with a pretty evergreen bush, only two or three feet high, and covered all over with bright red berries. In greenhouses, too, it will be invaluable for decorative purposes, where its flowers, although not showy, will fill the air with the most delicious odour, and its *profusion of berries* will be most attractive in the dull months of winter." Messrs. Standish and Noble state: "We find it perfectly hardy; and whether looking at it as an evergreen, or its very sweet-scented flowers or fruit, it is alike a very fine plant; and every one who has seen it in fruit has been charmed with it. Upon its first introduction doubts were entertained as to its complete hardiness; there are now, however, no just grounds for such. In the spring of 1852 we planted in the open ground a small specimen for experiment. In the spring of 1853 it flowered, and during the summer ripened its berries. At the moment of writing this (Jan. 26, 1854), those berries are still upon the plant; and with them a plentiful crop of flower-buds for the coming spring, when, doubtless, both the flowers of this year and the fruit of last, will be in perfection together. Besides the plant in question, others have been exposed to all the late severe weather; and not the tip of a leaf, or a flower-bud, has been injured in the least. It is as hardy as a common Holly, and the ordinary soil of a garden is all it requires on that head."

Dr. Wallich describes another plant, a *Himalayan* one, which was introduced into England several years previous to *S. Japonica*, and is now known under the names of *Skimmia Laureola*, and as *Limonia Laureola*: and an idea has got spread abroad that the *Chinese S. Japonica*, and the *Himalayan S. Laureola*, were identically the same; but in reality no plants can be more different, in so far as their ornamental properties are concerned, although they may somewhat resemble each other in their stems and leaves. The *Himalayan* plant has been growing out for several years, and yet we are informed that it scarcely ever opens its flowers, and never produces berries. The beauty of the *Chinese* plant (say Messrs. Standish and Noble) "not only consists in its being a mere dwarf evergreen bush, but also in the profusion of its flowers and abundance of Holly-like berries. Ours, too, flowers at two inches high, and fruits at six inches; but the other (*Himalayan* plant) although a very large plant, has never flowered." Mr. Van Geert, of Belgium, has had it many years; and although his plant is three feet high, and every year has all the appearance of coming into bloom, yet never does flower. In consequence of the mistaken conclusion of the plants being identically the same species, some persons have been sending *Limonia Laureola* for *Skimmia Japonica*, and in those instances

disappointment will be the result. Both have sweet-scented leaves, yet *Limonia Laureola* is by no means so sweet as *Skimmia Japonica*. The scent of the latter resembles that of ripe apples, but of the former a mixture of *Rue* and *Frazinella*. The leaves of *Skimmia Japonica* are broad lance-shaped, pointed, and the surface somewhat undulate (wavy). Those of *S. Laureola* (or *Limonia Laureola*) are oblong, SHARP-pointed, and the surface even (flat). We have been thus minute in describing the two, so that our readers may ascertain which is the true *S. japonica*. It is a free-growing plant, flourishes in a good sandy loam upon a dry subsoil, and merits a place in every shrub border, bed, greenhouse, or pit-frame.

NOTES ON NEW OR RARE PLANTS.

ALLOSORUS FLEXUOSUS. *Zigzag Allosorus*. (Synonyme, *Pteris flexuosa*; *P. cordata*).—This pretty and singular climbing fern is a native of Peru and Mexico, and flourishes in a temperate fern-house. In the collection at the Royal Gardens, Kew, the plants are from four to five feet long. The main rib of the side branches are singularly zigzag, and the short rachises, one of which issues from each angle, are generally pinnated with from three to five oval heart-shaped leaves, each leaf being about three parts of an inch long, somewhat leathery. It is elegant, and well worth a place in every collection of exotic ferns.—(Figured in *Bot. Mag.*, 4762.)

ANGRÆCUM EBURNEUM. *The Ivory Angræcum*. (Synonyme, *Limodorum eburneum*).—This fine stove Orchid is a native of Madagascar and Bourbon; a fine plant of it is in the collection at Kew Gardens. The plant is two feet high, having large, sheathing, leathery, shining, striated leaves, two inches broad. The flowers are produced in spikes, each having from six to ten large blossoms; sepals and petals much spreading, two inches and a half long, and half an inch broad; green. The labellum is of an ivory-white, thick and fleshy, of a broad heart-shape, two inches and a half across. It is a noble species, well meriting a place in any collection.—(Figured in *Bot. Mag.*, 4761.)

CEROPEGIA THWAITESII.—Of the natural order Asclepiadææ. Sent by Mr. Thwaites from Ceylon to the Royal Gardens at Kew. The plant is nearly a yard long, climbing, moderately branching, flourishing in the stove. The flowers are produced in umbellate racemes, arising at the angle of a leaf, one at each joint, and the raceme contains from three to five blossoms. Each flower has a narrow funnel-shaped tube, an inch and a half long, very narrow below, but much widened above, and almost globose towards the top. The tube is yellow, and the upper part of the flower beautifully sprinkled with dark blood-red spots. The blossom is singular in form, but very pretty.—(Figured in *Bot. Mag.*, 4758.)

DICHORISANDRA PICTA. *Blotch-leaved*. N. O. Commelineæ.—It is supposed to be a native of Brazil, and a stove plant. It is in the Royal Gardens at Kew. The plant is about a foot high, and the

branches are short, each having generally three leaves near the termination. Each leaf is broadly elliptical shaped, about four and a half inches long, green, often having a broad stripe of brown on each side, but edged with green, and very pretty. The flowers are borne in short terminal panicles, each blossom is an inch across, of a purple-blue, and a very distinct white spot at the base. Very neat and pretty.—(Figured in *Bot. May.*, 4760.)

EPIDENDRUM STAMFORDIANUM. *Mr. Stamford's.*—This beautiful flowering stove Orchid is a native of Guatemala, where it was discovered by Mr. Skinner, and of Santa Martha, in Mexico, by Mr. Purdie, who sent plants of it to Kew. It bears long dense racemes of flowers, each blossom being about two inches across.

PASSIFLORA MARMOREA.—This very beautiful species of Passion-flower is a native of New Granada, from whence M. Linden, of Brussels, obtained it in 1852. The leaves are similar in form to those of *P. vespertilio*, the *Bat-winged*, and the deep green foliage is beautifully marbled with white, somewhat like *Cissus discolor*. We have not seen a flower of it, but are informed it is equally handsome. If it did not produce a flower, the beauty of the foliage entitles it to a place in every stove or warm greenhouse.

TRIANÆA NOBILIS.—This fine plant makes a very admirable ornament when trained up a pillar, or round a circular wire framework. The leaves are large, leathery, resembling those of the *Solandra*. The flowers are in character like those of the *Cobœa scandens*, and produce a brilliant effect. The calyx is handsome, rose-coloured, spotted. The corolla is a vivid rose, edged with pure white, and a full-blown flower; is five inches across. It was obtained by M. Linden, of Brussels, from New Granada, and highly merits a place in every stove or warm greenhouse.

JOVELLANA PUNCTATA.—Introduced from Chiloe. It is a bushy evergreen shrub, having handsome leathery-like foliage, and blooms very freely during the spring season. The flowers are hood-shaped, of a clear blue, with a golden-yellow centre, spotted with chesnut colour in the inside, in a similar manner to the Foxglove. It is in Mr. Van Houtte's establishment.

Plants in bloom in the Royal Gardens at Kew.

STOVE.—*Ruellia macrophylla.*—A neat shrubby plant, with shining green leaves, and blooms freely. The flowers are produced in spiked heads; the tube of each blossom is about two inches and a half long, of a rich scarlet colour. A good winter-blooming ornament, well worth cultivating.

Echmea fulgens.—Its neat, shortish, pine-apple, plant-like leaves, and large branching panicle of fifty or more flowers, of a rich deep red, with a black tip, are exceedingly pretty. It merits a place in every stove.

Cypripedium insignis.—A fine Ladies' Slipper; the flowers are large, five inches across. The slipper portion (labellum) of a buff colour, with the upper part of the blossom (sepals and petals) white, edged with yellow and brown. It flowers very freely.

Cypripedium venustum.—The slipper (labellum) is mottled with

brown and green, and the upper portion (sepals and petals) white, with green stripes, tipped with brown. Both species are pretty winter-flowering, and continue in bloom for several months.

Medinella speciosa.—This robust plant, with its drooping, large, paniced raceme of flowers, intermingled with crimson, red, and blue, are very ornamental.

Begonia peltata, large leaves, and woolly-white blossoms. *B. fischeria*, a neat, numerous-branching, bushy plant, with white flowers. *B. longipes*, a compact erect growing plant, now five feet high, leaves large, angulated, flowers in terminal heads, white. *B. ulmifolia*, leaves oblong-shaped, long, grows erect and compact, now five feet high, flowers white, in terminal heads. *Ruellia ciliata*, with its neat, tube-shaped blossoms, each an inch long, of a rich blue, and the plant forming a neat bush, are exceedingly pretty.

CRINUM MELDENSE.—A fine hybrid, raised by M. Quetier, nurseryman, of Meux, and now in Mr. Van Houtte's collection. The flowers are beautiful, white above, and the under side a rose colour.

CALCEOLARIA LAVENDULIFOLIA.—A species obtained by Messrs. Standish and Noble from South America. Its neat, *lavender-like foliage* and bushy habit, along with its *profusion* of bright lemon-yellow flowers, render it an excellent bedding plant. The blossoms have the lips closed, and thus is less liable to injury by rain than any other Calceolaria. A bed of this in contrast with the pure *white-flowered* species, that has a similar neat foliage, would produce a pretty effect.

DENDROBIUM CHRYSANTHUM.—A magnificent plant of this fine stove orchid bloomed last summer, in the collection in the garden of Sir John Cathcart, near Windsor, which had one thousand seven hundred flowers; some of the flower-stems were five feet long. The large, rich, deep, orange-coloured flowers produced a splendid appearance. It is easy to cultivate, and well worth possessing.

ABIES JEZOENSIS. (Synonyme, *Pinus jezoensis*.)—This very noble and handsome tree grows one hundred feet high, and is found quite hardy in England. The leaves are nearly two inches long, thickly set along the branches, and have a very neat appearance. The *cones* (bearing seeds) are about nine inches long and two in diameter. Mr. Van Houtte has given a plate of it in the *Flore des Serres*, drawn from a specimen in his establishment, and the cone at that time was of a rich purple colour,

PICEA PINSAPO. (Synonyme, *Abies pinsapo*.)—This very handsome coniferous tree grows to sixty feet high, quite hardy. The foliage is much like that of the common Balm Fir of our nurseries, and the branches are densely furnished, so that it is much handsomer than that species, and the plant is so thickly set with branches that the trunk inside of them cannot be seen, yet the outside of the tree is elegantly neat. It forms a perfect neat cone, broad at the bottom, and regularly tapering to the top lead of the stem. Where a handsome-formed evergreen-tree is required, nothing neater can be placed. It may be had at a trifling price, too.

ERODENDRON BUNGEI.—A noble-looking, ornamental, shrubby plant, having broad heart-shaped leaves, eight or nine inches long, which

have the robustness of those of *Paulownia imperialis*, or the *Catalpa*. The flowers are produced in terminal corymbose heads, of eight to nine inches across, containing from eighty to one hundred blossoms; each five-petalled blossom is about an inch across, of a rosy carmine colour. It flourishes admirably in a cool greenhouse or conservatory, requiring only just to be protected from frost. It is supposed to be likely to endure in the open ground, giving it protection in winter. It merits a place wherever it can be grown; and as it can be procured at a very reasonable price, we hope it will be extensively sold.—(Figured in *Flore des Serres*.)

METHONICA VIRESCENS, VARIETY PLANTII.—This plant has recently been offered to the public under the name of *Gloriosa Plantii*. The flowers are produced in tiers along the stem, each tier about a foot apart. Each blossom appears crisped, or curled at the edges, of an orange-red colour, with the lower narrow part green, and the under side of a buff-yellow. Each flower is about five inches across. It is a native of Port Natal, and requires to be grown on the stove.

BEGONIA LAPEYROUSEI.—A fine hybrid, between *B. hydrocotylæfolia* and *B. incarnata*. The flowers are produced in large branching panicles, of a beautiful satin-rose colour. It was raised on the continent, and said to be exceedingly handsome.

IN THE GREENHOUSES.—*Epacris hyacinthiflora*, deep pink, bell-shaped, very pretty. *E. variabilis rubra*, flesh coloured, with deep rosy-red tip. *E. miniata*, light red, white tip. *E. ochroleuca*, pale primrose. *E. grandiflora*, crimson, with white tip. *E. Hopeana*, flesh colour, tipped with rose. *E. impressa carnea longiflora*, bell-shaped, pretty pink. *E. ardentissima*, tube half an inch long, a rich crimson, very showy. *E. Wilmoreana*, tube one inch, deep vermilion. *E. formosa*, bell-shaped, half an inch; beautiful pink. *E. Tauntontoniensis*, tube one inch, deep rosy-crimson. *E. nivalis grandiflora*, bell-shaped, three parts of an inch long, pure white, very pretty. *E. elegantissima*, tube one inch, fine rosy-red. *E. Fairbairnii*, bell-shaped, half an inch, pink, pretty. *E. splendida*, bell-shaped, three parts of an inch, deep rosy-red, profuse. *E. fulgens*, bell-shaped, half an inch, rich pink. *E. Craigii*, bell-shaped, half an inch, beautiful flesh colour. The above beautiful *Epacris*es are very ornamental, and are particularly distinct in appearance; all of them merit a place in every greenhouse, rendering it quite gay through winter and spring, and some during summer also. *Corræa brillanta*, tube long, of a fine crimson, having a large portion of the end a rich green. *C. tricolor*, tube long, flesh and rose colour, with a green end. *C. pallida*, tube nearly two inches long, greenish-white, very pretty. *C. bicolor*, tube one inch, rose, with green end. *C. Stockwelliana*, one inch, rosy-red. *C. speciosa*, one inch and a half, rich crimson, with green end. *C. magniflora*, one inch and a half long, pretty cream colour. *C. picta*, tube long, rose and yellow, with green end, pretty. *Selago distans*, very small, heath-like light green foliage, bearing a profusion of large, branching spiked heads of small flowers, a pure white, very neat, and by duly stopping the leads the plant is readily kept bushy. *Selago Gillii*, its flowers, too, are small, in short spikes, lilac colour. *Polygala ligularis*, a neat shrub, with large purple

and white flowers. *Ageratum glaucum*, a bushy shrub, bearing large flat terminal heads of white flowers. *Beaufortia decussata*, neat shrub, bearing a profusion of flowers; the long stamens compose the apparent blossoms, and are produced in large clustered heads, forming what is termed a bottle-brush head, and, being of a rich crimson, are very pretty, and render it a fine winter and spring ornament. *Acacia ovata*, flowers in small globes, a deep yellow, very profuse, leaves small; an elegant plant. *Acacia rotundifolia*, neat small foliage, flowers in globes, fine yellow, in profusion, pretty. *Acacia undulæfolia*, a neat small-leaved plant, bearing a profusion of rich yellow flowers in very long spikes; very pretty. Numerous other kinds will be in fine bloom in a fortnight hence. All the family of them are beautiful, and many of them have a rich perfume, and render them charming ornaments for the greenhouse and conservatory during winter and spring. The *Epiphyllum* (*Cactus*) *truncatus*, and its varieties, are now (in stoves) beautiful objects, some being grafted on the tall kinds, as is also done with *Cereus* (*Cactus*) *flagelliformes* (the creeping *Cereus*); the shoots hang down with long spikes of flowers, and are very pretty. *Begonia Prestoniensis* is a charming plant, too; some may be had in bloom all the year. Many other *Begonias* bloom now, all delicately pretty and elegant.

REMINISCENCES OF GARDENS.

BY RISCEMARA.

THE arrival in this dreary season of that interesting periodical, the FLORICULTURAL CABINET, brings pleasing thoughts of verdant meads and gay gardens, and inspires hope for future horticultural enjoyments, when the snowy livery now worn (January) by Nature (and which is particularly conspicuous in the country) shall have disappeared, and the cheering sun shall again have exerted his reviving influence over the vegetable kingdom; and it prompts me to recall to my recollection some of the many gratifications I derived from flowers during the bygone year.

At an early period, a *Camellia*, new to me, met my view in a window at Norwich; it appeared to be a single white one, with a deep brown blotch in the centre, and was not fully expanded; it resembled the bloom of the *Althæa Frutex*. Near it was a little plant which seemed a trailer; pendent branches had small green leaves, and numerous scarlet flowers, and it was something like a miniature periwinkle in shape. I have an idea it was the *Euphōbia Jacquiniflora*, whose branches had been allowed thus to droop, and, with its companion, came from Mackie's nursery at Brattonvale.

When the summer had just commenced, it was my lot to visit Framlingham, in Suffolk, and upon arriving near the castle, we found the horticultural show was that day to be held; but the doors were not yet open. It was interesting to observe the numerous carriages passing over the bridge which crossed the deep moat, and entering the court-yard of this

imposing structure; and to fancy the Princess Mary departing over *that very bridge* to assume the crown and sceptre of England. Warriors, too, had often emerged from the portals where now all was peaceful and serene; and the cause of so many persons of taste and respectability there assembling, was calculated to raise grateful feelings to the Divine author of all our blessings. We, too, soon crossed the bridge, were admitted through the massy gateway, entered the court, and found a long room in the castle devoted to the show; it had no architectural embellishments, but the horticultural ones were tastefully planned and well executed. There was no music to draw attention from the especial object of the day. On a white ground, and formed of ivy-leaves, variously arranged, we read the title of the meeting; and the effect was good and chaste. Several garlands adorned the walls, composed of Scarlet Geraniums and Syringa flowers, suspended above a decoration of blossoms of the Portugal Laurel. *Justicia carnea* and English Irises were seen in perfection. The Geraniums were numerous. I was much pleased with the Nonsuch for its good size, clear white ground, deep coloured rosy spots, rich pink upper petals with deep blotch, and its clear white throat. Verbenas striped, and variously tinted, were in abundance; but a very singular-looking plant made a deep impression on my memory. I understood its name was *Cateritia*; the leaves were like those of the Cornel Cherry-tree in shape and colour; the flowers were in clusters, and numerous, and resembled those of the small yellow Jessamine, only each was upon a tube about an inch long, under which were two delicately white leaves, of the same shape and size as the green ones; these leaves had a very unusual effect; the plant was bushy, and about a foot and a half in height. *Coleus Blumei* (described in the last Number of the *Floricultural Cabinet*) exhibited its irregularly serrated leaves, wide at the top and green, but sharply pointed below, with the centre of a purplish tint; it was not in bloom, but was a specimen not to be overlooked by the eye of an amateur. *Caladium bicolor* had leaves of an uncommon form, shaded and striped with dark and light tints of green. *Juonella parasitica* was about two feet high, with green leaves, the branches terminating with substantial-looking orange, heart-shaped flowers. There were some very handsome baskets, the lower fringes of which were composed of the blossoms of the white Acacia, which had a graceful and drooping effect.

Late in the year I saw, in a gentleman's garden at Wisbeach, amongst other beauties, the gaiety produced in the conservatory by the judicious arrangement of the new Pomponé (or Minima) Chrysanthemums; they were, I believe, the best sorts, numerous and varied in their tints. They were occasionally backed by a few of the larger kinds; a beautiful collection of Fuchsias being interspersed, the contrast of colour, so late in the year, had a novel and charming effect. I am now watching with interest the opening of the scarlet blossoms of the curious *Sericographia Ghiesbreghtiana*, and the apparently white ones of the *Adamia versicolor*; their expansion is evidently impeded by the coldness of the season, and I am unacquainted with their treatment and history.



DRACÆNA DRACO.—DRAGON'S-BLOOD TREE.

Most botanical writers consider that this celebrated plant is a native of India as well as the Canary Islands. It is stated to have been introduced into England previous to 1640. A plant of it is usually to be seen in our botanical gardens, and is generally placed along with Agaves, Aloes, &c. No doubt, some of our readers will recollect seeing a long naked-stemmed plant, having a head very similar in form to one of a *Yucca* (Adam's Needle). There is one in the large Palm-house at the Royal Gardens, Kew, which has a naked unbranched stem of eight yards, with a large head, another yard. The leaves are from three to

four feet long by two inches and a half broad, terminating in long-spiked points; they have a glaucous hue, and somewhat leathery. The younger leaves shoot out erect, and force the previous ones proportionately outwards, so that the oldest half of them droop till the entire head has a globular appearance of seven feet, at least, in diameter. It has grown about eight inches higher each year since its removal into this celebrated house. The flowers are produced in branching panicles, arising from the centre of the head; three or four blossoms are clustered together, numerous, on these panicles. Each flower is an inch and a half across, six-petalled, of a yellowish-white, partly tinged with green. We have only heard of one plant blooming in the United Kingdom, namely, in the stove of the Dublin College Botanic Garden, in 1850. Dr. Mackay gives the following account of it:

"After it had been grown in a pot for ten years, it was planted out into a bed of earth in a large stove. About three years ago it became too tall for the house, and, in order still to secure the plant for the collection, the following experiment, suggested by Mr. Bain, was made. The stem, which was fifteen inches in diameter close under the leaves, and eighteen feet high, was, during six months, gradually cut across, four feet above the root, about an inch deep at a time, to prevent bleeding. The remaining part of the stem and root were then removed as being useless, and the upper portion of the stem (and its head) suspended immediately above the former station of the plant. In the course of eight months, during which time it was kept perfectly dry, it threw out several thick aerial roots from the edge of the stem where it had been cut. It was then lowered into its former position, and had the stem and roots sunk four feet in dry sandy mould. This was done about a year and a half ago, and the plant, which is now in excellent health, has lately flowered."

The tree derives its name from a *resinous exudation*, usually known in trade as "dragon's blood," and which, it is recorded, was an article of considerable exportation in the early conquest of the Canary Islands.

The plants grown in England cannot supply us with an idea even of the appearance the tree puts on in its *native isles* in its maturer age. A particular account of one is recorded in Webb and Berthelot's "History of the Canary Islands;" it is designated "The celebrated Dragon Tree of Orotava," of which a drawing was taken in 1790, but the plant having been injured by a tremendous storm in 1819, another drawing was subsequently taken.

Humboldt, in his "Travels," states, "It is now included within the garden of M. Franchi, in the small town of Orotava, one of the most delicious spots in the world. In 1799, when we climbed the Peak of Teneriffe, we found the trunk of this enormous vegetable was *forty-five feet* (fifteen yards) in circumference a little above the root." Sir George Staunton affirms that, at ten feet high, its circumference was thirty-eight feet; its height was calculated at from seventy to seventy-five feet. M. Berthelot states its growth from twenty-five to thirty years is its "first age," or infancy. He speaks of two other periods "of maturity, or of reproduction, when a rapid production of branches occurs, and the trunk sensibly increases in thickness; then, too, com-

meinces the flowering period." In the third period, "*of age or decay*," aërial roots appear on the trunk, &c.

A part of a *branch* from this celebrated tree is in the Museum of the Royal Gardens at Kew; its *diameter* is two feet. What a majestic object must this tree have appeared, with a *trunk* fifteen yards through, bearing its immense number of *thick* branches, and immensely more numerous lateral ones, *each* terminating in a large *Yucca-like* head of leaves, flowers, &c. Our figure is on a very reduced scale of that which was taken of the great "*Dragon Tree of Orotava*," as it appeared in 1790.

WINTER CULTURE OF MIGNONETTE.

BY MR. JAMES MAYOR, CASSIA LODGE, OVER CHESHIRE.

HAVING met with considerable success in the culture of this, perhaps the particulars of my method will be found useful to some of your subscribers.

It would be superfluous to advance anything in favour of its merits, as a *summer* plant, as this is already universally known, but that it is one of the most useful plants in *winter* that we are in possession of, is perhaps not so generally understood; but those who have already succeeded in bringing it to perfection in winter, will readily agree with me.

This plant, when subject to any artificial treatment, is extremely susceptible of *atmospheric variations*, more so perhaps than any other plant of its character; yet, when the temperature of the house of which the plant is an occupant, is kept *steady*, it will thrive with a rapidity far exceeding the expectations of the most sanguine experimentalist. It is also very impatient of damp, particularly in the earlier stages; this being the case, watering over head necessarily becomes a *dangerous process*, although an indispensable requisite. A bright morning, when air can be admitted freely, is the best time for this operation; once a week will be sufficient to meet the requirements of the plant, and quite as often as its constitution will allow. Water is never administered to the root, so long as the compost contains moisture enough to prevent the plant from flagging. It is the practice with some who grow this plant in winter to have recourse to stakes; that is to say, they fancy that every shoot, no matter how long or short the same may be, requires a stake, and a stake it must have. This, however, is in direct opposition to the *habit* of the plant; and further, any infringement of this sort unquestionably meets with that disappointment which such a violation of the laws of Nature merits.

It is essentially necessary that the plant, or plants, should be kept *near to the glass* until the time of flowering, as they acquire considerable strength by their proximity to the same. My mode of procedure, is as follows:

Towards the beginning of August the seeds are sown in boxes or seed-pans, in compost of equal portions of loam, leaf-mould, and thoroughly

decomposed dung (from the old hot-beds) ; they are then removed to an airy shelf in the greenhouse, where they remain until the plants have attained a height of about two inches, when they are carefully pricked into No. 12 pots, four in each pot, in the compost I have mentioned.

The plants, as noticed before, must be kept on the shelf until they show flower, when they are transferred to the stands or brackets on which it is supposed they will remain over the time of flowering. At this stage of the proceedings clear liquid-manure is given every alternate watering ; be it remembered that the water on all occasions is made conformable with the temperature of the house. As the flowers begin to develope themselves, liquid-manure is given when anything in the shape of moisture is required by the roots. Nothing further in the shape of potting is needed ; all that is now wanting is due attention to watering, and I venture to say, that the result will not only be satisfactory, but will doubly repay the cultivator for the attention bestowed.

THE WEEPING-ROSE, AND THE TREE-ROSE.

BY A LADY CULTIVATOR OF THEM IN MIDDLESEX.

THE increasing number of splendid varieties of the much-esteemed family of Roses, and their admission into every flower-garden and pleasure-ground being a desideratum, induces me to forward a few practical observations on their culture as standards, and on what are termed weeping roses. During the past summer I have been much struck with the increasing taste for their culture on lawns, and to exhibit their splendid heads in the centre of a flower-bed, or back part of a border.

In remarking on the growth of a tree-rose, I must observe, that the rings round the bottom of both *stem and branches* are the depositories of a *dormant bud*, which will not be called into action unless the *buds above* be injured, or unless the sap arise so profusely as to be unable to expend itself by the upper parts, in which case the buds below break out ; though, indeed, they will occasionally do so, as the natural act of the tree in preference to rising higher. This is more observable in the wild rose than almost any other plant, and perhaps may, in some degree, explain the reason why budded roses are shorter lived than those on their own bottom ; for any one who has at all observed the growth of wild stocks, must have noticed that the original head is seen generally on hedges in much worse plight than the shoots which have been subsequently formed at its base. This tendency of the dog-rose to break out below, must be checked, I find, in two ways ; the first, by destroying every sucker and shoot as it starts, and the second, by finding full work for the sap above, and giving it a free passage.

If, then, in cutting the top of a tree at pruning time, you leave a couple of buds on every shoot of last year's growth, or three at most upon a very strong one, there will be quite enough to occupy the sap, keep the tree within bounds, make it much handsomer, save the sap

the expense of maintaining old wood, and give it a free course. If there be more sap than enough, a fresh shoot will likely enough start from the crown of the graft, or the rings upon the first year's shoot, and increase the head of the tree, as well as bring you back with new wood nearer home,—a matter always desirable as tending to keep the head from straggling.

Cutting to the lowest buds always leaves the sap with but a short channel to pass through, strengthens the branch below the buds, and is every way beneficial, if care be taken that a sufficiency be left to occupy the sap.

If the tree be not pruned at all, it will lose its shape entirely in a single year, afford little or no bloom the next, and eventually straggle to death.

Trimming the shoots has nothing essentially different in the manner of execution to trimming the stock; in trimming to a bud, barely the thickness of a sixpence should be left above the bud, and the excision should form a slant about equal to that caused by dividing a square from angle to angle: if more were left above the bud, it would die down to the bud, and prevent the bark from healing over the wound; in general, the line of the bud is the slant the knife should make in its passage through the shoot.

Cutting out old wood should always take place where it can; the desirable point being to keep near home, as it is called; when, therefore, your tree throws out a fresh and vigorous shoot, close to the base of an old branch which has straggled too far from the graft, cut out the old wood in March, close to its base, leaving the young shoot to supply its place, and receive its nourishment. This principle well applied, will always keep the trees in bounds; but as this requires judgment, and cannot well be explained in writing, take a lesson upon the subject, the first convenient opportunity, from a scientific gardener.

A tree well formed, with a promising head, and in health, ought, the spring succeeding the budding, to have a clean straight stem, no lumps or knots, one shoot quite at the summit, and two, or at all events, one other shoot as near as possible also to the top; if there are two shoots only, at opposite sides to each other; if three, forming a triangle; if more, as nearly equidistant from each other, in the diameter of the stock, as possible (and here, be it observed, that the more shoots at the top of the tree, the handsomer and quicker is the head formed), each with a bud inserted in it, close to the stem; and at the cross cut, where the bark of the bud usurps the place of the original bark of the stock, a sufficiency of sap ought to have exuded, not only to have joined the bark of the bud with the unmoved part of the bark above it, but also to have joined the separated part of the bark of the stock to the same place, and thus linked the two barks of bud and stock to the single bark of the stock above them.

The edges of the vertical slit in the bark do not heal by attaching themselves to each other, but the bark of the bud underneath them forms a connecting link, and the edges above mentioned perish insensibly away, leaving little or no scar behind. The second spring, the tree becomes more perfect, the extraneous parts of the stock, if any remain,

are cut off, as well as those of the shoots, and the head so arranged as to throw its buds where they are wanted to make it round, even, and handsome. If, however, some shoot be obstinately bent on growing in any direction, spoiling the appearance, and crossing the others, by no means remove it on that account alone, but place a little twig across from it to any other convenient branch, and confine it for the season as you wish it to be, removing the ligature in the succeeding spring, or even in the same autumn when the sap is down.

Lastly; the third spring the tree should show itself with all its wounds nearly closed, its buds strong, full, and healthy, and it should look perfectly natural, those parts of the shoots upon which the buds were placed more incorporated with the stock. The bark clean, no dead wood; and wherever a shoot has been shortened, the place so grown over as to leave no dissight, which will be the case for some time wherever any wood more than one season old is cut away, and a thin shoot of a single year springs at the end of it. This is the reason why forest trees look so ill when shortened as old ones, viz., that the taper appearance is destroyed, and wood of five or six years' growth is continued by the shoot of a single spring, and thus a piece of wood, of the diameter of half a dozen inches, has a little mean-looking shoot, or in all probability half a dozen, not thicker than horsewhips, at the end of it.

Whatever it is worth while to do, it is worth while to do well; work properly commenced does not require that constant superintendence which a bad beginning is certain to render necessary, and which eventually involves a much greater expenditure of time than any labour bestowed at the outset could have demanded.

Having thus brought my remarks to a close, as to the operative part, in preparing and perfecting the tree, it may not be amiss to spend a few moments in the consideration of the effect expected to be produced by it when planted out.

There are three causes of beauty in a tree,—shape, foliage, and flowers. Shape (to a certain degree) we artificially gain; foliage and flowers must depend upon the sort; the foliage is the more permanent, the flower the more striking. Planting out, then, must depend entirely upon the effect desired, and the taste of the party planting, as to variety of foliage, height, flower, its colour and continuity; a tree with rambling shoots suits one place, and with a cauliflower head another. The tree-roses never look well in a round clump; they must have a single appearance, or be in some sort of line.

If your roses are to look, when finished, like a sloping bank, plant your heights in succession, viz., each under each; but if they are to have a less forced and regular appearance, and a more single and light look, leave out an intermediate height, as thus: a two-feet in front of a three-feet, &c.

Be it observed, that a three to four-foot standard is most in keeping with the head it carries, and, being nearer the ground, has a very natural and steady effect, and in confined places it is unquestionably best in its appearance; but if the tree is to be distant from the eye, or the shrubbery or walk be large and increasing in distance, a four-

foot standard is certainly more distinguishable, and has a much greater effect.

A foot standard is of little or no use, except it be intended to approach the edge of a border, or is grafted for the convenience of affording nose-gays, or increasing the quantity of the plant placed upon it.

The heights most in use having been shown, it may be remarked, that for a weeping-rose to stand singly (perhaps surrounded with a wire guard and creepers upon it, to have a more marked effect), you cannot find a stem too high, if it be proportionally strong. A fine plant of this sort, seven to ten feet high, budded with a noisette, or boursalt, looks beautiful, and its long free branches, covered with clusters of roses, have a wild and luxuriant appearance, which give a distinct character to a tree budded in this way. Or some natural climber, having but one main shoot tied up erect, and all its buds cut out as high as it is desired the naked stem should be, may then have a head of shoots formed; and if they be allowed to droop answers equally well. I have several, with umbrella-shaped wire frames fixed at the top of the iron or wood support, over which the head of shoots are tied at equal distances, and hanging over the rim, when in bloom, are very beautiful, with their numerous drooping chains of lovely blossoms. They are handsome ornaments for the garden or pleasure-ground.

HOW TO GROW, AND BLOOM IN PROFUSION, THE PLEROMA ELEGANS.

BY AN ARDENT ADMIRER OF FLOWERS.

DURING the last summer I made a gardening tour of six weeks, and amongst the most beautiful of *warm greenhouse* plants was this very ornamental flowering plant; and what adds to its value is, that the numerous large (Melastoma-like) flowers are of a colour most wanted to adorn our collections; namely, an *intense blue with a shade of violet*. One magnificent specimen was about thirty inches high, and as many across—a complete bush of branches; and the entire was in a profusion of bloom. Each blossom an inch and a half across. By frequent stopping the shoots last year, for the purpose of forming the plant (not allowing it to flower), it had been well done. It was grown in a compost of equal portions of chopped turfy loam, and turfy sandy peat, both having been chopped, turned, &c., during the previous year. A third part consisted of old rotten manure, leaf mould, and a sprinkling of bits of charcoal, and a free drainage. Manure water was given every third supply. This very showy plant ought to be grown in every collection, and would be one of the finest ornaments. It succeeds well, too, in the stove, is readily increased and cultivated; the great desiderata is to have the *young wood well ripened*. Perhaps it would be best obtained by having a few plants, and allowing half to rest a year for preparation, whilst the other was allowed to bloom; thus alternately treated, would provide a fine bloom on superb specimens.—An Amateur Plant-grower, *Faling*.

OBSERVATIONS ON THE CALCEOLARIA.

BY MR. J. SHEPPARD, FOREMAN IN THE GARDENS OF THE MARQUIS OF BATH,
AT LONGLEAT, NEAR WARMINSTER.

THE admiration of *vegetable beauties* is almost as universal as the inhabitants of the world; their cultivation coextensive with the existence of the human race; and it is certain that flowers have always been a favourite luxury and embellishment of home in every age, country, and clime. From time immemorial, too, a *flower-garden* has been deemed an essential attachment to the habitation of man. So strongly is the love of "these natural beauties" implanted in the breast of man, that those who have not a *terrestrial allotment*, except what is limited to that contained in an *earthen vase*, or *pot* of a few inches in diameter, contrive to raise and cultivate a plant. How cheering is the consideration that the CREATOR has furnished us with *ornaments* alike calculated to adorn and gratify the sight to *any extent*: but where the bounds are *very limited*, even the *elegance* and *beauty* of a *single plant* present an exquisite picture, alike suited for the admiration and enjoyment of its possessor.

At no previous period has there existed such a galaxy of *varied beauties* to adorn and perfume our flower-gardens and parterres as at the present day, and in each recent successive year new beauties appear. I have been particularly struck with this fact during the last year; for as each following Number of this Magazine appeared, it contained a description of additional novelties in its lists of new and rare plants, and other contributions. I am glad that the present year's volume begins so well, too, and was pleased to find a descriptive list of an ornamental section of bedding-plants given at page 6 of this month's Number, by Mr. Burley; and I by no means wish, in my further observations on the Calceolaria, or that list of varieties, to depreciate the excellent remarks he has given us, neither do I intend to speak in disparagement of the Calceolaria as a bedding-plant; and I have no doubt the list Mr. Burley has added to his remarks contains some very superb varieties. At the same time, I think he must have forgotten our old and tried friend, *C. rugosa*, among the yellows; or do those he recommended really supersede this, in the *profusion* of flowers and *compactness* of habit?—if so, they are indeed a valuable acquisition. Their propagation, I beg to say, is much easier than your correspondent led your readers to suppose; although I must admit they amply repay any trouble the cultivator may bestow.

Some time back, before the duty was taken off glass, my then employer required an unlimited number of this plant, for various purposes, which was supplied by the following means:—A temporary frame was made up, as we required all the glass structures for other purposes; to this temporary frame some light-made sashes were obtained, and to these some cheap calico was applied, and *tacked tightly on*. This done, the calico was dressed over with a mixture of bees'-wax and linseed-oil, made hot enough to dissolve the wax, and applied with a brush on the outer side. This substitute for glass will be found to keep waterproof, and, if taken care of, will last for a number of years.

In order to raise a stock of plants, a little rubbish should be placed in the bottom of the frame, and on this about four or five inches of soil, sprinkling the top with a little coarse sand to keep them firm; damp the surface, and it is ready for your cuttings, which must be placed about two inches apart each way, placing them in rows up the frame.

If the cuttings are properly made, scarcely one will fail rooting. Here they are to remain until wanted for bedding. They must be kept close by day until fairly rooted. When they are wanted for planting out, they may be taken carefully up with a small plunging-fork, and with as much earth adhering to them as possible, at once transferring them to their destination.

In conclusion, I by no means recommend these canvas frames for *constant* purposes, at the present cheap rate of glass; but at the time I am speaking of, they formed one of the cheapest as well as most useful frames a gardener could possess for striking cuttings of half-hardy plants, affording a nice medium shade. If glass is now used, the above directions are applicable, only the glass *must be shaded until the cuttings are rooted*. After this, the lights should be drawn off on all favourable opportunities, to avoid damp. Cover up on the appearance of frost. Scarlet geraniums and many other plants will stand this mode of treatment with impunity, damp being the principal thing to guard against. The value of this mode of treatment above that of Mr. Burley's (if I may presume to compare them) is this: any person possessing a common *one-light* garden-frame, may, with the necessary quantity of cuttings, furnish themselves at bedding-time with one hundred plants, at least, of these esteemed and justly-prized favourites. If only a very few of them are wanted, I would decidedly recommend rooting them under a common handglass placed behind the wall of any building. In that case, shake a little soot before laying the sand, to keep them unmolested by worms, insert the cuttings, sprinkle overhead with a fine rose, and they will not require any further attention, till rooted, beyond shading.

The method of treatment detailed in the preceding particulars is so simple that, being adopted, any LADY GARDENER may furnish herself with an ample supply of plants, with little attention, and at a very cheap rate. In both cases, *propagating* should not be *later than October*, that they may be fairly rooted before winter sets in.

MISCELLANEOUS SECTION.

ASIATIC GARDENS.—Sir R. K. Porter, in his "Travels in Georgia, Persia, and Armenia, from 1819 to 1821," thus describes the Royal Gardens of Persia:—"Having, for the most part, described the royal residence in the *Ark*, attached to the city, I shall not say anything more of its details, but proceed to the *agrémens* of two much more delightful palaces in the neighbourhood. One, called the *Tacht-i-Kajer*, is situated about three miles to the north-east of the town; being intended as a summer retreat from the toils of state, whenever the

king might find it expedient to pass the whole year at *Teheran*. But this rarely happens, *Khorassan*, or *Sultania*, or *Oujan* being in general his abodes during the warm months. *Tackt-i-Kajer*, however, is constantly inhabited by any number of his ladies of the harem, whom he may not choose should accompany him on his further journeys. It stands on an eminently pleasant point of the adjoining mountains, being built on a detached and commanding hill on the great slope of the *Elbors*. The edifice is lofty, and when seen from a distance, presents a very magnificent appearance. The stateliness of the structure itself is very much increased in effect by the superb ranges of terraces, which connect its spacious gardens, as they diverge from the base of the building downwards towards the bottom of the hill. They are laid out in parallel walks, planted with luxuriant poplars, willows, and fruit-trees of various kinds, besides rose-trees in profusion. In the centre of these shady labyrinths stands a kind of grotto or temple, which, from its construction, materials, and distribution of water, must, in summer, be delightful from its coolness and seclusion. Few of the flowers were in bud when I first visited this charming spot; but the balmy season advancing with singular rapidity in these higher tracts of Persia, soon covered every mountain's brow with rich herbage, and filled the whole air with perfume from the full-blown gardens. The spring at *Teheran* is not only the pleasantest of the seasons, but the most healthy, which I found by experience. While I was there, during the months of April and May, the thermometer of Reaumur never mounted to more than from 70° to 80° in the shade. In the short space of those few weeks the whole country put on its fairest garb, looking enchantingly, and breathing sweets from every quarter; and how often did we think of our poor friend, whose eyes we had so recently closed, and wished he could have borne the last lingering severities of departing winter a little longer, to have inhaled new life in this balmy relenting of nature. One of the delicious spots, to which I paid the most frequent visits after the commencement of the genial weather I speak of, was the garden of *Negauristan*, another palace of the king's, in the same direction as the one just described, but only half a mile from the city. Its near neighbourhood, as well as superior beauty, often attracts the Shah to walk to it from the *Ark*, and to pass hours there, in the most delightful relaxation of mind from the cares or ceremonies of State. The general character of the garden is like that of *Tackt-i-Kajer*, only the grand avenue up the centre of this is much wider than that of the more distant residence, and is terminated at the higher extremity by a view of the palace; while a Koolch Fraugy, or temple, appears here also between the spacious arcade of trees. Narrow secluded walks, shaded above, and enamelled with flowers below, with cuts of clear and sparkling water, silvering the ground and cooling the air, vary the scene, from parts which the neglect (or taste assuming graceful negligence) has left in a state of romantic wilderness. The trees were all full-grown, and luxuriant in foliage; while their lofty stems, nearly covered by a rich underwood of roses, lilacs, and other fragrant and aromatic shrubs, formed the finest natural tapestry of leaves and flowers.

"On my first entering this bower of fairy-land (indeed I may call it

the very garden of Beauty and the Beast!), I was struck with the appearance of two rose-trees, full fourteen feet high, laden with thousands of flowers, in every degree of expansion, and of a bloom and delicacy of scent that imbued the whole atmosphere with the most exquisite perfume. Indeed, I believe that in no country of the world does the rose grow in such perfection as in Persia; in no country is it so cultivated and prized by the natives. Their gardens and courts are crowded with its plants, their rooms ornamented with vases filled with its gathered bunches, and every bath strewn with the full-blown flowers, plucked from the ever-replenished stems. Even the humblest individual, who pays a piece of copper money for a few whiffs of kalioun, feels a double enjoyment when he finds it stuck with a bud from his dear native tree! But in this delicious garden of *Negauristan* the eye and the smell were not the only senses regaled by the presence of the rose. The ear was enchanted by the wild and beautiful notes of *multitudes of nightingales*, whose warblings seem to increase in melody and softness with the unfolding of their favourite flowers; verifying the song of their poet, who says, 'When the roses fade, when the charms of the bower are passed away, the fond tale of the nightingale no longer animates the scene.' "

CULTIVATION OF THUNBERGIAS.—Every species or variety of this lovely genus are handsome, some of them very particularly so, neat and elegant, and can be had in fine bloom from the early part of spring to November; in fact I have a succession, and have flowering plants all the year, in the stove during winter, and greenhouse in the summer. I treat my plants in the following manner:—As all sorts ripen their seeds well, I raise my plants from seeds every year. They are sown in 48-sized pots, in a rich light soil, plunging them to the rim in a cucumber frame in the beginning of February; and, as soon as they are about four inches high, they are potted off singly into 48-sized pots, in the following compost:—Light turfy-loam, black heath soil, good rotten hotbed dung, equal parts, adding a little leaf-mould. As soon as the roots fill the pot, the plant is shifted into a 16-sized pot, and is then topped to cause it to throw out lateral branches, repotting it till it has acquired nine shoots; and, when requisite, it is repotted into a 4-sized pot, and removed into a stove or vinery at work, where a trellis is made for it in the following manner:—Eight small green rods are placed round the inside of the pot, six feet long, and one in the centre seven feet long, a wire hoop being fastened round the top of the eight outside rods; and from the top of each of these rods a small piece of twine or wire is carried to the top of the centre rod, thereby forming a dome. A shoot is fastened to each of these rods, and frequently stopped, to furnish the trellis completely; and to keep the plant vigorous, all flower buds are nipped off as soon as they appear, until the trellis is nearly covered; watering frequently with *manure* water. Of course the pot must be thoroughly drained, which is an important feature in the cultivation of all plants in pots.

With this treatment I have grown all the species and varieties of the *Thunbergia*, to the admiration of all who saw them, both as to vigour and profusion of large flowers.—*J. Price.*

NOTES ON THE PLANTS OF CHINA.—At this festive season flowers are as much sought after here, for the purposes of decoration, as they are at home at Christmas-time. On visiting some of the flower-shops in Shanghai, in the middle of January, I was surprised to find a great many flowers, which had been forced into bloom, and were now exposed for sale. I was not previously aware that the practice of forcing flowers was common in China. Many plants of *Magnolia purpurea* were in full flower; as were also many kinds of double-blossomed Peaches, the pretty little *Prunus sinensis alba*, and a variety of Camellias. But what struck me as most remarkable, was the facility with which the Moutan Pæony had been brought into full bloom. Several varieties of this plant were in full flower; and at this season of the year, when everything out of doors was cold and dreary, they had a most lively effect. Their blooms were tied up, to keep them from expanding too rapidly. All these things had been brought from the celebrated city of Soochow-foo, the great emporium of Chinese fashion and luxury.

It may be thought that the Chinese have glass houses, hot-water pipes, and all those fine things, which assist gardeners and amateurs in Europe. Nothing of the kind; they do all these things in their houses and sheds, with common charcoal fires, and a quantity of straw to stop up the crevices in the doors and windows.—*Fortune's Visit to the Tea Districts of China.*

**NATIONAL CARNATION AND PICOTEE SHOW, HELD AT YORK ON AUGUST 3.—
NURSEBYMAN'S CLASS.**

Twelve Carnations.—1st. Mr. Keynes, of Salisbury, with *Acca*, *Magnificent*, *Owen Glendower*, *Duke of Sutherland*, *Queen of Roses*, *Twylford Perfection*, *Admiral Curzon*, *Valentine*, *Jenny Lind*, *Lady Gardener*, *Beauty of Woodhouse*, and *Lord Lewisham*. 2nd. Messrs. Schofield and Son, of Leeds, with *Magnificent*, *Telemachus*, *Beauty of Woodhouse*, *Count Pauline*, *Rainbow*, *Paul Pry*, *Flora's Garland*, *Firebrand*, *Squire Trow*, *Admiral Curzon*, *Lovely Ann*, and *Justice Shallow*. 3rd. Messrs. Bainbridge and Hewison, York, with *Lorenzo*, *Mars*, *Count Pauline*, *Harriet*, *Premier*, *William IV.*, *Lydia*, *Beauty of Woodhouse*, *Mr. Peto*, *Music*, *Paul Pry*, and *Enchanter*.

Twelve Picotees.—1st. Mr. Keynes, with *James II.*, *Venus*, *Mrs. Barnard*, *Princess Royal*, *Ophelia*, *Alfred*, *Victoria Regina*, *Haidee*, *Juliet*, *Lord Nelson*, *Countess*, and *Grace Darling*. 2nd. Messrs. Schofield and Son, with *Olivia*, *Beatrice*, *Mary Ann*, *Portia*, *Prince Arthur*, *Mrs. Horner*, *Alfred*, *Isabella*, *Miss Rosa*, *Victoria Regina*, *Mary*, and *Ann*. 3rd. Messrs. Bainbridge and Hewison, with *Miss Rosa*, *Portia*, *Sir W. Middleton*, *No. 70 (Dodwell)*, *Prince of Wales*, *Lady Harriett Moore*, *Elizabeth*, *No. 8 (Dodwell)*, *Lady Harwood*, *Mrs. Barnard*, *Sebastian*, and *Mary*.

PRIVATE GROWERS.

Twelve Carnations.—1st. Mr. E. S. Dodwell, of Derby, with *Sarah Payne*, *Rembrandt (Bayley)*, *Premier*, *Firebrand*, *Ariel*, *Rachel (Dodwell)*, *Lorenzo*, *Lord Milton*, *Rachel*, *Lord Milton*, *Poor Tom*, and *Admiral Curzon*. 2nd. Mr. Bayley, Derby, with *Lord Ranccliffe*, *Premier*, *Sarah Payne*, *Ariel*, *Falconbridge*, *Rubens (Bayley)*, *Queen Victoria*, *Rachel*, *Admiral Curzon*, *Lord Milton*, *Firebrand*, and *Flora's Garland*. 3rd. Mr. H. Steward, York, with *Lorenzo*, *Lord Ranccliffe*, *President*, *Harriet*, *Squire Trow*, *Africana*, *Lord Ranccliffe*, *Splendid (Hardman)*, *Admiral Curzon*, *Splendid (Hardman)*, *Firebrand*, and *Admiral Curzon*. 4th. Mr. John Edwards, London, with *Queen Victoria*, *Acca*, *Sir Joshua Reynolds*, *Tyalt*, *Admiral Curzon*, *Romeo*, *Princess Royal*, *Tyalt*, *Admiral Curzon*, *Squire Meynell*, *Sarah Payne*, and *Queen Victoria*. 5th. J. J. Coleman, Esq., Norwich, with seedling, *Lord Ranccliffe*, *Premier*, *Music*, seedling, *William IV.*, *Lorenzo*, *Justice Shallow*, *Squire Trow*, *Firebrand*, and *Matthews's Esther*. 6th. Mr. Burman, of Hull, with *Prince Albert*, *Horsa*, *Mrs. Pickering*, *Admiral Curzon*, *Lady Ely*, *Admiral Curzon*, *Duncan*, *Lovely Ann*, *Lord Byron*, *Firebrand*, *Squire Meynell*, and *Lord Milton*.

Twelve Picotees.—1st. Mr. E. S. Dodwell, with Duke of Devonshire (Bayley), Regina (Marris), Prince of Wales, seedling, Haidee, Countess, Venus, Prince Arthur, Rosalind, Mrs. Norman, Mrs. Barnard, and Bridesmaid. 2nd. Mr. John Edwards, with Mrs. Norman, Princess Royal, Alfred, Princess Royal, Grace Darling, James II., Queen Victoria, Countess, Christabel, Mrs. Barnard, Gem, and Queen Victoria. 3rd. Mr. Bayley, with Duke of Devonshire, Regina, Haidee, Countess, Venus, Mrs. Barnard, Gem, Prince Arthur, Prince of Wales, Duke of Devonshire, Prince of Wales, and Bridesmaid. 4th. Mr. Silbey, of Nottingham, with Gem, Mrs. Barnard, Alfred, Ophelia, Alfred, Lord Nelson, Sophia, Jenny Lind, Theodore, Mrs. Norman, Princess Royal, and Lady Alice Peel. 5th. Mr. H. Steward, with Miss Rosa, Ganymede, Elizabeth, Miss Rosa, Enchantress, Princess Royal, Mrs. Barnard, Juliet, Princess Alice, Mrs. Norman, and Delicata. 6th. Mr. Fisher, Derby, with King of Purples, Countess, Mary, Lady Harriet Moore, seedling, Mrs. Barnard, Prince of Wales, Isabella, Venus, Prince Arthur, Lord Nelson, and Bridesmaid.

SINGLE BLOOMS, IN CLASSES: OPEN TO ALL.

CARNATIONS.

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|----------------------------------|--------------------------------------|------------------------|---------------------------------|
| <i>Scarlet Bizarres.</i> | | <i>Purple Flakes.</i> | |
| 1 | Admiral Curzon, Mr. Keynes | 1 | Premier, Mr. E. S. Dodwell |
| 2 | Ditto ditto | 2 | Ditto ditto |
| 3 | Prince Albert, Mr. Silbey | 3 | Ditto ditto |
| 4 | Rembrandt, Mr. Bayley | 4 | Ditto ditto |
| 5 | Admiral Curzon, ditto | 5 | Ditto ditto |
| <i>Crimson Bizarres.</i> | | <i>Scarlet Flakes.</i> | |
| 1 | Owen Glendower, Mr. Keynes | 1 | Commander-in-Chief, Mr. Steward |
| 2 | Ditto ditto | 2 | Queen Victoria, Mr. Dodwell |
| 3 | Lord Milton, Mr. Bayley | 3 | Firebrand, Mr. Steward |
| 4 | General Monk, Mr. Keynes | 4 | Firebrand, Mr. Dodwell |
| 5 | Lord Milton, Mr. Bayley | 5 | Firebrand, Mr. Bayley |
| <i>Pink and Purple Bizarres.</i> | | <i>Rose Flakes.</i> | |
| 1 | Sarah Payne, Mr. Bayley | 1 | Flora's Garland, Mr. Keynes |
| 2 | Sarah Payne, Messrs. Schofield & Son | 2 | Ditto ditto |
| 3 | Sarah Payne, Mr. Bayley | 3 | Magnificent, Mr. Bayley |
| 4 | Lady of the Lake, Schofield and Son | 4 | Seedling, No. 4, ditto |
| 5 | Sarah Payne, Mr. John Edwards | 5 | Rosetta, Mr. Keynes |

PICOTEES.

- | | | | |
|----------------------------|----------------------------------|--------------------------|--------------------------------------|
| <i>Heavy-edged Red.</i> | | 3 Haidee, Mr. Keynes | |
| 1 | Mrs. Hoyle, G. W. Hoyle, Esq. | 4 | Bridesmaid, ditto |
| 2 | Ditto ditto | 5 | Ditto ditto |
| 3 | Theodore, Mr. Keynes | <i>Heavy-edged Rose.</i> | |
| 4 | Seedling No. 10, Mr. Bayley | 1 | Alice Hoyle, G. W. Hoyle, Esq. |
| 5 | Duchess of Cambridge, Mr. Silbey | 2 | Venus, Mr. Bayley |
| <i>Light-edged Red.</i> | | 3 | Lamia, Mr. Keynes |
| 1 | Gem, Mr. Silbey | 4 | Alice, G. W. Hoyle, Esq. |
| 2 | Gem, Mr. Bayley | 5 | Miss Rosa, Mr. Bayley |
| 3 | Mary, Mr. Fisher | <i>Light-edged Rose.</i> | |
| 4 | Mary, Mr. Steward | 1 | Seedling, Mr. Dodwell |
| 5 | Jenny Lind, Mr. Silbey | 2 | Mrs. Barnard, Mr. Silbey |
| <i>Heavy-edged Purple.</i> | | 3 | Mrs. Barnard, Mr. Bayley |
| 1 | Alfred, Mr. Keynes | 4 | Mrs. Barnard, Mr. Silbey |
| 2 | Duke of Devonshire, Mr. Bayley | 5 | Miss Rosa, Messrs. Backhouse and Son |
| 3 | Lord Nelson, Backhouse and Son. | <i>Yellow.</i> | |
| 4 | Alfred, Mr. Keynes | 1 | Martin's Queen Victoria, Mr. Keynes |
| 5 | Duke of Devonshire, Mr. Bayley | 2 | Malay Chief, Mr. Burman |
| <i>Light-edged Purple.</i> | | 3 | Trip to York, Mr. John Edwards |
| 1 | Haidee, Mr. Keynes | 4 | Prince Oronean, ditto |
| 2 | Ophelia ditto | 5 | Euphemia, Mr. Burman |

Premier Carnation.—Lord Raneliffe, Mr. H. Steward.

Premier Picotee.—Haidee, Mr. Dodwell.

Our readers will, on examination, see what flowers are found most frequent in the stands, &c., which, in general, testifies of their first-rate excellence, and thus constitutes a guide to purchasing.



THIS month's attention is particularly required to provide plants which shall make the coming floral season's display; *immediate* efforts must be made by sowing seeds, striking cuttings, dividing plants, &c.

IN THE FLOWER GARDEN.

Rose-trees must be planted directly. Prune the open-air kinds of the *hardy class* now, and the tenderer sorts next month. Perennial and biennial plants in the flower-bed may be divided. Plant out Hollyhocks and any of the biennial plants. Pink-beds: see that the plants remain secure. Carnations and Picotees: if mildew attack the leaves, sprinkle with sulphur. Manures should be laid over the roots of Roses, removing a few inches of the earth, filling up the hollow with well-rotted cow or hot-bed dung, and sprinkle it over with soil, so that it may not dry.

About the middle of the month, if the weather be dry, plant Ranunculuses and Anemones five inches apart, an inch and a half deep from the crown to the surface; and if the soil be dry, after planting, press the surface with a flat board. Be careful that Tulips be *firmly* secured in their positions, so that they be not damaged by wind. A small protection against strong wind should be provided on the bed side most exposed. Heartsease should have a similar protection. And those plants which are to be grown in pots for Exhibitions must now be put into the blooming-pots in *rich* loam. Now is the time to make a plan of the flower-garden, parterre, &c., and to mark each bed with the kind of flowers required, and then to prepare a stock to furnish accordingly, whether from the sowing of seed or otherwise, as with Verbenas, &c. Protect the early buds of Tree Peony, &c. Sow some of the hardy annual seeds in borders for early bloom in dry situations.

IN THE FORCING STOVE OR FRAME.

Sow seeds of tender annuals, as Balsam, Amaranthus, Cockscomb, &c., in pots, and the half-hardy kinds, as Asters, Stocks, &c., either in pots or upon a bed of soil, &c.

Cuttings of Fuchsias, Alonsons, Ragwort, Calceolarias, Cupheas, Salvias, Heliotropes, Geraniums, Lotus, Bouvardias, Anagallis, Verbenas, and such like plants, for the open beds in summer, should immediately be struck, or the plants will be too weak to answer the purpose. If cuttings were put off in autumn, they should now be potted off singly into small pots; any long ones amongst them should be stopped to induce laterals and make bushy plants.

Dahlia roots should be immediately put to force stock, and seed be sown in pots. Lobelias be potted singly, to have them vigorous by turning-out time. Boxes and pots of Mignonette for succession should be sown. Achimenes, Gesnerias, Gloxinias, &c., be introduced, to promote their immediate growth, and as soon as they have pushed, pot them, singly. Amaryllis, &c., be excited in like manner. Pot Tigridia pavonia and T. conchiflora into small pots. Sow seed of the Chinese Primrose, and as soon as the plants are fit to pot off do so in a rich compost; keep them in heat for a short time, and never water them over head. Calceolarias be encouraged, to have them large; they, as well as Cinerarias, succeed best when grown in a warm, moist, airy pit-frame, kept at about 56° of temperature. Fumigate with tobacco, to have the plants free from green fly; do it immediately one is seen. Fuchsias required for exhibition should now be cut in, so as to have them a good shape, and after having pushed a little, be re-potted, thinning away all unnecessary shoots.

IN THE GREENHOUSE, &c.

Pelargoniums, to be superb specimens, should be re-potted into their blooming pots (read the several Articles on their culture in previous volumes); they must have a free circulation of air around the plants; it gives vigour to the shoots and prepares them for a higher temperature afterwards without injury, and a stronger bloom is produced. The one

ear old plants headed down last autumn, will have produced young shoots now, a few inches long; thin them. In order to have a succession of bloom, now stop the shoots; this will induce the production of lateral ones, which will come into bloom after the first race of plants have ceased, and continue to a late period of the season. A few more plants stopped a month later, will supply to the end of the year. (See vol. xvi. p. 199.) The surface soil in all pots should be stirred up; it tends to health. *Epacris*, *Correa*, *Coronillas*, *Acacia*, *Cinerarias*, and other plants, will now be coming in bloom; water seldom as possible, but when given, let there be as much as will moisten *all* the soil. *Ericas* will still be inactive; give but little water. If any mildew appear, dust with sulphur. *Camellias*, too, should occupy an airy part, and the greatest care should be taken to keep the soil in an *equally moistened* state, using water of a temperature equal to that of the house. Give weak manure-water alternate with the other. *Alstromerias*, *Lilium speciosum*, and others, should be re-potted.

IN THE STOVE.

Exotic seeds should not be sown.—(See Articles in former volumes). Specimen plants for exhibitions will require re-potting, pruning, &c. *Ixoras* should be elevated, so as to be near the glass, in order to set their bloom; they must have plenty of air at all times convenient.

BRIEF REMARKS.

SUPERB RHODODENDRONS.—(A Ten Years' Subscriber.)—The following will suit well for the bed you mention.

Thompsonii.—Will grow to eight or ten feet high, a noble kind for the centre of the bed. Flowers large, in fine heads, of a rich deep blood colour.

Edgeworthii.—We gave a plate of this fine kind in our last Number. The plant is of medium size, and its very large flowers are strikingly handsome. It is a fine acquisition.

Fulgens.—A dwarfish bushy plant, blooming freely, and the flowers are of a rich glossy crimson, shining as if varnished.

Wightii.—A noble plant, having very large leaves, and it will grow ten feet high, if necessary to have it so. Flowers produced in large heads; they are large too, of a *rich yellow*, handsomely spotted with red.

Maddenii.—resembles *Edgeworthii* in its large white flowers, tinged with rose. It will grow six to eight feet high, and the leaves a bright green.

The above are kinds which Dr. Hooker discovered at the Sikkim Himalayas, and recently introduced into England, quite hardy, and may be procured for a few shillings each, according to size.

Cunninghamii.—Of medium size, having large heads of fine-sized flowers, white, beautifully spotted with black.

Aureum punctatum.—Of medium habit, flowers in large heads, a fine primrose, beautifully spotted with red.

Towardii.—Flowers shaded light pink, handsomely spotted with crimson, superb form, and in large heads.

Jacksonii.—Bright rose, blotched and striped, beautifully spotted, free bloomer.

Alexandrina.—Pure white, free bloomer, dwarf.

Queen Victoria.—Dark claret and purple, fine compact heads of flowers. Of medium habit, very pretty.

Uxbridgeensis.—Light peach colour, fine heads, and superb shapes, dwarfish plant; fine.

Superbissimum album.—Blush, edged with pink, and beautifully spotted.

Maculata grandiflora.—Vigorous plant, flowers in large heads, dark maroon, finely mottled; handsome.

Pictum.—White, beautifully spotted and marbled in the throat. Of medium habit, free bloomer.

Wilsonii.—Superb rich deep scarlet, numerous spotted with brown.

Reginum.—Beautiful blush, compact heads, and very handsome.

Vesuvius.—Large flowers, of a rich blood-red colour; very fine.

Guttatum.—Delicate blush, beautifully spotted with green and red spots.

GNATS.—Smoke of any kind will drive away gnats; if you burn brown paper in a room where they are, they will settle, and seem to become so stupified as not to be troublesome again for some hours.

A VISIT TO THE CAPE OF GOOD HOPE AND VAN DIEMEN'S LAND. By J. B.—How I thought of home at the Cape, that paradise of flowers! Though the first bloom was over on my arrival, yet enough was left to show what had been, nor without seeing can you imagine the profusion. There are actually no weeds. Our favourite little blue *Lobelia* is the chickweed of the place; the ditches and all damp places are filled with Cape *Lilies*, Heaths of all colours, the *Erica*, I believe coccinea, growing very high, *Diosmas*, *Crassulas*, &c., &c. I saw a great deal of the Cape; we were above a fortnight there, and travelled about a hundred and eighty miles into the interior. With the general appearance of the country I was disappointed; there are no trees. The silver tree, a *Protea*, is the highest indigenous plant that I saw. There are oaks in and about Cape Town, Constantia, Wynberg, &c., and, indeed, wherever a house is built, a few trees are planted for shade; but the country, for miles, has nothing higher than heath, and for the greater part of the year is sterile-looking. But in the season the whole face is covered with flowers; and such a face! Fancy acres of heaths, of all colours, interspersed with *Gladioles*, *Ixias*, *Watsonias*, *Babianas*, *Lachenalias*, &c., without end, all growing and flourishing in their native luxuriance. Some bunches of *Mesembryanthemums*, near Sir Lowry Cole's pass, were actually too bright to look at. I lived in one constant whirl of delight, that ecstasy in which we behold perfection. I could not see fast enough. Most of the *Ixias* were out of bloom, but their remains were like patches of a hay-field in seed, only the stems closer together. Myrtle hedges were eight and ten feet high; the one I saw at Sir John Herschell's must have been more, and as close and substantial as our best holly hedges. We visited Villette's and Baron Ludwig's garden, but where the whole country is a garden, these were of less interest. The *Melia Azedarach*, with its sweet lilac blossoms, is a beautiful and ornamental tree, which I did not see wild. We visited the Constantias; Great Constantia is beautiful, the soil is white, and looks like lime and sand intimately mixed. I thought of our gardeners' recommendation of lime rubbish for vines.

To the Cape, Van Diemen's Land is a direct contrast. This is a country of hills, fringed to the very top, and perhaps about the thickest vegetation in the world. All is evergreen, and one dense mass of gloom. At first sight it is sombre enough, but, like a dark beauty, it has its charms; the wood is chiefly "gum" (*Eucalyptus*), growing to an immense height, and throwing its long white arms about in a wild Salvator style. The young "gums" are beautiful, and their new shoots of reddish brown lightening into a paler hue, and deepening into myrtle green, with the light new shoots of the "wattle" (*Acacia*), give a rich beauty of colouring, delightful to the eye of a painter. Nature here must be painted to the life; there is nothing to soften.

There is a harshness and dryness in the texture of vegetation here that is very peculiar; even their kangaroo grass (*Anthistiria Australis*), which is considered so nourishing, is hard and hairy, or rather wiry. The flowering shrubs are extremely pretty, but the flowers are very small. The *Epacris impressa* is in great quantities everywhere, but Heaths have not as yet been successfully cultivated here, and there are none native. The soil is very dry. But cultivation of any kind is only creeping in. A Horticultural Society has been formed at Launceston, and it is to be hoped knowledge and emulation may thus be excited. With science and judgment everything and anything may be done here: wherever English trees are planted there they flourish, but they are few and far between. The Sweetbriar is now seen in the woods, and grows to an immense size. The quantity of flowers and fruit, such as they are, is beyond belief, but there are none of the best kinds. Think of grafts here bearing the first year, an earnest of what might be. I succeeded in bringing here alive, but in bad health, the *Lilies of the Valley*; four leaves are green, the only morsel in the southern hemisphere.

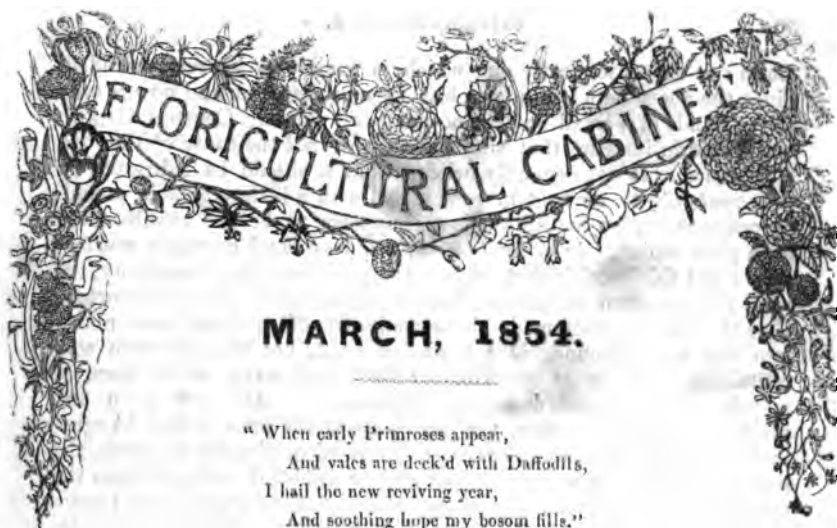
ON A NEW WHEELBARROW, BY CAPTAIN F. WILSON.—In this barrow the wheel is placed under, and is sunk into the bottom; so that the weight rests on the wheel and not on the hand, and there is less oscillation. By means of this barrow it was stated that twice the usual weight can be wheeled.

RUELLIA CILIATA.—I am particularly partial to this plant when in bloom; its profusion of large light-blue and black flowers, standing erect, like the Spring Gentian, are exceedingly attractive, especially so in contrast with its small Heath-like foliage. When properly grown, it forms a neat bush. I saw one at the Chiswick Horticultural Show, three years ago, that was about half a yard high, and two feet across, in robust health and profuse bloom. Since that time I have purchased several small plants, but cannot succeed to grow them well. I should be obliged by any reader giving me, as soon as possible, instructions how to treat it successfully.—AN ARDENT ADMIRER.





1. *Calceolaria alba*.
2. *Linum grandiflorum rubrum*.



ILLUSTRATIONS.

1. LINUM GRANDIFLORUM.—2. CALCEOLARIA ALBA.

THIS very brilliant-flowered LINUM is a native of Algeria, and was originally discovered near Masacura, growing in *heavy land*, by the French botanist, Desfontaines, who called it *Linum pulcherrima*, and it first bloomed in France at the Paris Jardin des Plantes, in the summer of 1848. In consequence of mismanagement, it appears that the first plants failed to produce seed; but from a second importation of seed plants were raised, which have produced a somewhat liberal supply of seeds. Desfontaines stated, that in its native situation "it threw up *clusters* (several from the same root) of erect, or bending stems, from eight to twelve inches high, producing a profusion of flowers, borne in loose panicles."

Hitherto it has been cultivated as an *annual*, but, strictly speaking, it is *perennial*, similar to the common perennial flax; but as it would require in England to be protected in winter, it will of course be more readily cultivated as a *hardy annual* in the warmer parts of this country, and in other parts as a *half-hardy*, pricking out the plants as is done with the *Phlox Drummondii*, &c., or potting three or four in a sixty-sized pot, and turning them out with entire balls into the open bed or border in April.

During the two or three years' experience with the plant in France a suitable mode of treatment has been ascertained, and M. Ysabeau records in the *Revue Horticole* the results of his experience, and states, "This pretty annual was figured in the *Revue Horticole* of November, 1848. The plant bears a profusion of flowers, which remain long in

bloom; it is consequently one which is greatly to be recommended. Since the above date it has been lost in most gardens, and now is only in the hands of a small number of amateurs. Messrs. Courtois, Gerard, and Vilmorin imagine that they have discovered the cause of the disappearance. It was generally believed that it should be cultivated in *pure peat-soil*, or at least in peat mixed with a little vegetable mould, or common garden earth. This soil appears to be too unsubstantial for a plant which, like other *Linums*, requires *much vegetable nourishment*; and this nourishment not being supplied in sufficient quantity, the plant did not ripen its seeds, and eventually perished. Messrs. Courtois, Gerard, and Vilmorin made the experiment of pricking some plants into the open ground, in a border of light, but tolerably rich soil, containing much more nourishment than peat-earth, either pure or mixed. This experiment succeeded perfectly. Although sown and pricked out somewhat late, the plants are at the present time (August 2nd) covered with flowers, having well-formed ovaries full of seeds, the perfect ripening of which does not appear doubtful, judging from the good state of the plants. It is probable that the cultivation of *Linum grandiflorum* failed from the excess of precautions taken to ensure its success; if the plant had been treated the same as other hardy annuals which are sown in beds or under glass, and pricked out into the borders, it would have perpetuated itself without difficulty."

Some attempts have been made to sell this plant under the name *Linum splendidissimum*, Vill. We deem it necessary to add, that there is one or more of blue-flowered varieties sold under the name of *grandiflorum*, and in order to distinguish the one we now figure, some of the seedsmen have put the additional name of *rubrum*, and designate it *L. grandiflorum-rubrum*. It is one of the most charming plants that has been introduced of late years, and ought to be in every flower-garden. And it will, we suppose, also prove to be an ornamental plant for decorating the greenhouse during the summer.

2. *CALCEOLARIA ALBA*.—This very charming *Calceolaria* is a native of Chili, which was first discovered and noticed by Ruiz and Pavon. It is what is termed a shrubby species, growing about half a yard high, very branching and bushy. Its numerous narrow leaves, of a rich green, are exceedingly neat, and give the plant a compact, but elegant appearance. Its numerous panicles of pure white flowers contrast prettily with its rich green foliage, and render it very attractive. It grows very freely, and young plants raised early in summer, and becoming hard wooded before winter, are easily preserved if kept in a cool and dry pit-frame or greenhouse. It flourishes when grown in pots, and it appears very likely to succeed well grown in the open flower-bed in summer; if so, it will be a charming bedding plant. We have not yet tried it in this way, but intend to do so the coming season. It would make a charming contrast with the *new* yellow-flowered, which Messrs. Standish and Noble possess, and was noticed by us in the February Number; both kinds merit a place in every greenhouse or flower garden.

Mr. Lobb discovered the plant, too, during his travels in Chili, and sent some it to Messrs. Veitch, of Exeter.

NOTES ON NEW OR RARE PLANTS.

AMOMUM DANIELLII.—Belongs to the natural order of *Gingers* (Zingiberacæ). It is a native of the Gold Coast and Slave Coast of Western Africa. With us it requires the heat of a moist stove. The stems grow about two and a half feet high; leaves, oblong lance-shaped, nine inches long. The short flower scape rises at the bottom of the stem, close to its side, and is sheathed with large, red, boat-shaped scales, from within which appear in succession from three to five flowers, large, and richly coloured. The outer *sepals*, fine red; the spreading *labellum*, whitish, tinged with rose and yellow. Each (gaping) blossom four inches across. Figured in *Botanical Magazine*, 4764.

GOLDFUSSIA GLOMERATA SPECIOSA (Synonyme, *Ruellia glomerata*).—A native of Silhet, requiring to be grown in the stove. It is an erect, strong, branched plant, growing about half a yard high. The tube of the flower is an inch long and nearly half an inch through; between cylinder and funnel-shaped. The front of the blossom (Limb) is five parted, an inch and a half across, of a rich deep purple colour. It blooms very freely and very showy in the autumn months. Figured in *Bot. Mag.*, 4767.

WARREA QUADRATA.—THE FRAGRANT.—A rare and handsome flowered stove Orchideous plant, said to be a native of Central America. Dr. Lindley notices its affinity with *Warrea discolor*, both in habit and form, but the flowers of *W. quadrata*, Sir W. J. Hooker states, are "larger and more fleshy, with no purple but in the centre and upper half of the lip. It is essentially known by the appendix at the base of the lip being *nearly square*, about three-toothed in front, and deeply furrowed; whilst that of *W. discolor* is uniformly digitate in all specimens I have seen." The flower scapes are erect, not rising so high as the leaves, but about six inches, each bearing a large, drooping, sweet-scented flower. *Sepals* white, or pale-greenish straw colour; *petals*, same colour; *lip*, very large, white with a broad purple margin and a few purple streaks at the centre. Each blossom is about two inches and a half across; very pretty. Figured in *Bot. Mag.*, 4766.

CISSUS DISCOLOR.—We have noticed in former Numbers this most lovely twining plant, but having seen it in bloom induces us again to introduce it. It is a native of Java, and when trained horizontally in a stove where it is brought close to view, no other plant that we know is equal to it for beauty. The leaves are long heart-shaped; each when full sized is about five inches long, the upper side of a bright *velvety-green*, mottled and marbled with a *silvery-white*; and the underside of a *rich red-purple*. The branches are of a *coral-red* colour; the whole producing a most striking contrast and very handsome appearance. The flowers are produced in small cymous heads, at the joints where the leaves are, but on the opposite side of the stem to the leaf-stalk. Each head of blossoms is about an inch across, and contains about a dozen very small four-lobed, fleshy flowers, of a pale yellow colour. The plant is admirably adapted for training round a number of sticks or wire frame; thus coiled it soon covers the support and becomes very

attractive. It succeeds well in the greenhouse during summer, and in a warm dwelling-room window all the year. Every admirer of a pretty plant ought to possess the *Cissus discolor*. Figured in *Bot. Mag.*, 4763.

CHEILANTHUS FARINOSA (Synonyme, *Pteris argentea*).—A very handsome FERN, a native of Arabia, Abyssinia, and the Indian mountains in general. It flourishes in a pot in a temperate greenhouse. The leaves are from six to ten inches long, pinnate, and the lower pair are bipinnatifid, of a dark green above, and the underside white, beautifully powdery. It is exceedingly neat, and worth a place in every greenhouse or Wardian-case in a dwelling room. Figured in *Bot. Mag.*, 4765.

SPIRÆA CALLOSA (Synonyme, *Spiræa Fortunei*).—It was first introduced from China into England, by John Reeves, Esq., and subsequently by Mr. Fortune. It is a hardy shrub, somewhat like *Spiræa bella*, but the terminal branching cymous-heads of flowers are much larger than those of the last-named species. They are of a deep ruby-purple colour, and being produced in profusion are very ornamental. Each head of bloom is six to eight inches across. It merits a place in every shrubbery. Figured in *Flore des Serres*, by Mr. Van Houtte.

ROSE, GLOIRE DE DIJON.—A superb new TEA-SCENTED ROSE, which obtained FIRST PRIZES (golden medals) at the Grand Exhibitions at Dijon in 1852, and Paris in 1853. The judges at Dijon gave it the name it now bears. It is a vigorous growing plant, blooms profusely, and each flower is about five to six inches across, full double, and of a transparent yellow, tinged at the edges with a salmon colour, and the underside of the petals is salmon coloured. It is most deliciously fragrant, and the form of first-rate excellence, much like the flowers of *Souvenir de la Malmaison*. We suppose Mr. Van Houtte will be able to supply plants this season.

PETUNIA STRIATA FORMOSISSIMA.—This is a most beautiful variety. Each blossom is about three inches and a half across, and of fine form. The ground is white, and sometimes the blossom is marbled, whilst others are sprinkled over or neatly striped with rose or carmine, and the throat having a tinge of blue, handsomely streaked. It merits a place in every flower garden or greenhouse. Mr. Van Houtte has plants for sale at a very reasonable price; and also offers thirty-two other new and very superior varieties, thirteen of which are remarkable on account of the various beautiful markings of their colours, and the others are celebrated for the large size of the flowers.

ROSE GLOIRE DE PARTHENAY.—The shoots of this fine rose are deep green, and the spines are red, which produce a pretty contrast. The form of the flowers is like those of the well-known and much-admired *Rose du Roi*. The colour is a delicate blush centre passing to a rich lively rose colour to the margin of the petals. The underside of the petals is nearly white. It is a seedling raised from seed saved from the very handsome one, Duchess of Sutherland, and produced in the garden of M. Alizart, of Parthenay, in France. It is of first-rate form and excellence, and no doubt will soon be offered for sale by Mr. Van Houtte and other continental nurserymen.

CULTURE OF THE CHRYSANTHEMUM.

BY MR J. SHEPPARD, FOREMAN IN THE GARDENS OF THE MARQUIS OF BATH,
AT LONGLEAT, NEAR WARMINSTER.

I need scarcely advance anything in favour of this beautiful autumn-flowering plant, as I feel confident those who are fortunate enough to have become acquainted with it will not easily relinquish their culture; and those not already possessed of a collection, will find this an excellent time to make their purchase; for what can be a more salutary employment than cultivating the beautiful and bounteous gifts of our Creator? It is apt to lead a contemplative mind, in the language of Shakspeare, to

"Find tongues in trees, books in the running brooks,
Sermons in stones, and good in every thing."

We are principally indebted to our brethren on the Continent for the many improvements made; likewise to our principal nurserymen for bringing them before us. Could we but get them to seed in this country, we should undoubtedly have a more numerous variety, and very likely possessing what in England are considered perfection in form. Their culture is so simple, that those of the humblest pretensions may indulge in it; a common garden frame being all that is requisite, in the way of glass, providing it is of sufficient depth for head-room.

The cuttings should be taken off about the first week in April; they may be either inserted in cutting-pans or thumb-pots. Preference should, however, be given to the latter mode, as they receive no check after re-potting. They should be partially filled with a nice rich mould, adding a little coarse sand on the surface, slightly damp them, and insert a cutting in each pot, plunging them in a nice bottom heat, keeping close till fairly rooted; after which give air gradually till they become a little hardened. They may then receive a shift into pots known as large sixties; and if convenience will admit, they may again receive the benefit of a slight bottom heat; if not, keep them close for a few days, after which give air on all favourable opportunities. As soon as they have taken well hold of the soil, stop them to within a few joints of the bottom; this will be found to keep them bushy; shift them on as they become rooted into forty-eight sized pots, using *three* parts of a good strong fibrous loam, three parts to *one* part of well decomposed cow manure and a little sand. After potting, let them be plunged nearly to the rim of the pot, either in coal ashes or in the open ground, duly attending to them with water; for if *once* permitted to become *dry*, their leaves will *turn yellow* (for want of this necessary attention how often do we see plants with long *naked* stems?) and eventually fall off. They must be shifted again, as soon as well rooted, into thirty-twos, or if *wanted large*, twenty-fours, using the same kind of compost; and if the *large flowered varieties* are grown, larger pots must be used. Let them be again plunged, after which little more will remain to be done, beyond supplying them with *manure-water*

twice weekly, and clear water as they require it. Neatly stake them out, to prevent their being broken.

Very large plants may be obtained by planting them out early in the open ground, and taking them up *after setting their flower buds*. Care must be exercised in this operation, otherwise they will flag. Dull showery weather should be taken advantage of for this: pot in a good rich soil, and place them in the shade of a north aspected wall; and if not showery, frequently syringe them. I have grown the large-flowered varieties in this way without losing a leaf, and they were admired by all who saw them. If wanted for decorative purposes, in small pots, I recommend the Pompons (or Minimas), propagated as late as August. They will form little gems for the drawing-room; and if a few pots of Mignonette are added, it will impart to the whole a charming fragrance, at once exhilarating and delightful.

The following descriptive list of kinds comprises what will give a striking variety, as well as containing most of the *best* out.

Pompons.—Drine-Drine, fine soft yellow; Bijou de Horticulture, creamy white; Atropos, crimson; Atala, fine rose; La Fiancée, white; La Lapajou, deep yellow centre, edged with red; Sacramenta, orange-yellow; Lais, crimson-purple; Graziella, rosy-blush; Madame Jules de Gory, white shaded with yellow; Perfecta, lilac; Adonis, rosy-purple. *Large-flowered varieties*.—Temple de Solomon, fine yellow; Madame Poggi, crimson-chesnut; Nancy de Sermet, white; Queen of England, bluish-white, fine; Princess Maria, rosy-lilac; Annie, canary-yellow; Pio Nono, mixed red or scarlet; Dupont de l'Eure, carmine orange; Jenny Lind, rosy-buff; Duke, blush; Campestroni, plum-coloured; Glück, golden-yellow, fine.

PLANTS ADAPTED FOR FORCING, WITH REMARKS ON THEIR CULTURE.

BY MR. JAMES MAYOR, GARDENER TO E. LISTER, ESQ., CASSIA LODGE, OVER
CHESHIRE.

FORCING in general is a very important yet interesting branch of our profession; without this artificial method flowers in winter would be scarce indeed. Attention to the following rules generally gains success. *First*, that plants intended for forcing should be subject to a preparatory system, depending upon the character and requirements of the plant: *secondly*, that they be introduced into heat no higher than is necessary for the gradual development of the flowers, &c.: and *last*, but not least, is attention to watering, which should be assiduously attended to, as many plants suffer exceedingly from injudicious applications of water.

SCARLET GERANIUMS being generally admired, we cannot do better than begin with them. *Propagation* is easy, consequently we shall pass over it to the time of planting out in spring. A certain number

of the strongest plants are selected and re-potted into No. 8 pots, the compost being equal portions of sand, leaf-mould, and turfy loam. They are then plunged into some open bed or border, where they remain until about the middle of September, when they are taken up for a final potting. The roots will be found perfectly matted, which is the object we aim at in confining them to pots through the summer; the size of pot for this last shift must entirely depend on circumstances, as the space allowed them, &c. The ball must by no means be broken during the operation of potting, as it would counteract the effects of our preparatory system. The plants being potted they are put into some cool frame or pit for several days and shaded during the middle of the day, then transferred to the house in which it is intended they will remain over winter. Attention to air, watering, &c., are all that is now wanting to ensure a profusion of their beautiful flowers.

CALCEOLARIAS (Bedders).—Doubts have been and still are entertained, as to the practicability of flowering these in winter, but such as exist must ultimately be removed. These, like the preceding ones, require preparing in summer; indeed the treatment throughout is the same, with the exception that these are kept a little cooler and supplied more abundantly with water. Green-fly are particularly fond of exercising their destructive and devastating powers on these plants, but daily watering *overhead* will not only prevent them making their appearance, but will be highly beneficial to the plants altogether. They should be kept as near to the glass as possible, as they are apt to get long legged, long jointed, &c. With these, as with the last, care should be taken to preserve the extremities of the shoots, for on these we depend for the principal part of the flowers. Amongst the best as *forcers* are, *Amplexicaulis*, *Kentish Hero*, and *Floribunda*, but nearly all will flower well if proper attention is paid to them in summer.

HELIOTROPIS.—These are great favourites at all times of the season, but particularly in *winter*, being in point of colour so very different to the majority of our winter flowering plants. In bouquets they are almost indispensable: they will continue fresh and beautiful a considerable length of time after their natural support is withdrawn. Their almost universally admired perfume is sufficient to secure them a place in every plant structure.

The summer treatment differs a little from the foregoing ones. In spring, cuttings are inserted in compost of sand and leaf-mould, round the edges of pots; and when rooted they are potted in compost of loam and leaf-mould, and though allowed to move on, by being re-potted occasionally, they are *pinched rather severely*, to produce plenty of short-jointed shoots. Towards the latter end of August this pinching is entirely given over, and they are re-potted to remain over winter; the compost being the same as above, with the addition of sand.

By the time they are introduced into heat, which may be in October, the plants will have made a considerable amount of new shoots, all of which, as far as is practicable, should be retained. When the plants show flower, liquid manure should be given copiously.

(To be continued.)

MIGNONETTE CULTURE.—BLOOMING SPECIMEN PLANTS.

BY J. F. FRY, OF ROCHESTER.

I was much struck with the article in the last month's Number of the *Floricultural Cabinet* on the culture of the Mignonette plant, which I am sure will be highly appreciated by every lady gardener, as this charming plant may be justly termed the ladies' delight. I think, however, Mr. Mayor might have gone somewhat farther, and informed us a little about the nature of this plant, where it originally came from, the number of varieties, and if an annual or perennial, &c. As I have given some attention to the culture of this beautiful plant, a few more hints as to its treatment may not be unacceptable.

We find that the Mignonette plant is a weed in Egypt, from whence it was taken to France about the year 1740, and there given its present name—*little darling*. In 1742 it found its way to Windsor, and soon afterwards became very general in this country. There are, it is stated, as many as twelve varieties, though all of that number are not known to us.

My mode of cultivating these plants in pots, as specimens, is as follows, and it will be seen to differ somewhat from the treatment recommended by Mr. Mayor. In the month of June take up as many plants from the garden as you require; let these be short and stubby, and not longer than two inches; pot them singly into 4-inch pots, and shade for a few days. Do not allow the plants to be in the *full sun* at any time during the summer, but place them out of doors under a *shady* wall or hedge. They will only require an occasional watering, and stopping of the shoots, till the month of August. In August shift them into 6-inch pots, and shade as before; and should the shoots be very thick, peg them down and out from each other. They will thus go with but little water and frequent stopping till the month of October, at which time they may be potted into their blooming pots, the size I use being 8-inch ones. Still exercise the finger and thumb, and in December you will find you have *short-jointed* and *nicely grown* plants. The soil I find to be most suited for them is loam, peat, and a little dung from an old hot-bed, well mixed, but not sifted. They require a generous drainage and very little water. Keep the plants out of doors till November, weather permitting, then place them as near the glass as possible.

By the mode of treatment above described I have, at the present time, plants of twenty inches in diameter, and one mass of bloom from the top to the bottom, and as nice little specimen plants as ever were taken to an exhibition, and in pots amply large enough for any strong lady to move about.

Mr. Mayor informs us, that it is only a summer plant, but for my part I think he will find it is not an *annual* but a *perennial*, and can be grown as many years as required with proper care and attention.

As *seed time* has once more arrived I shall feel glad if, in the above hints, I have sown only *one seed to advantage*.

REMARKS ON MESEMBRYANTHEMUMS.

BY MR. JOHN CHARLTON, LONGLEAT GARDENS, NEAR WARMINSTER.

THE name of this handsome and much-admired genus is derived from *mesembria*, mid-day, and *antheion*, a flower; mid-day flower or noon flower, because the flowers of most of the species *close* in the absence of the sun, and *expand* in broad sunshine.

Three hundred and twenty-four species have been discovered; most of them are natives of the Cape of Good Hope; a few, however, are from New Holland and New Zealand. Thunberg informs us, that the bushmen in Caffraria and other parts of the Cape often build their temporary huts with bushes of *Mesembryanthemum*, in which they live as long as their food lasts. They have a species called the *M. edule*, of which they eat the fruits, which they call "Hottentots' Figs." He mentions another species, of which he says, "*Kon* was a name given by the Hottentots to a shrub that grew here, viz., *Mesembryanthemum Emarcidum*, which was famous all over the country. The Hottentots come far and near to fetch this shrub, with the root, leaves, and all, which they beat together, and afterwards twist them up like pig-tail tobacco; after which they let the mass ferment, and keep it by them for chewing, especially when they are thirsty. If it be chewed immediately after fermentation it intoxicates. The word *Kon* signifies a *quid*; the colonists call it canna-root. The Hottentots hawk it about, and exchange it for cattle and other commodities. Some of them smoke it also." Thunberg also speaks of another species, of which "the fruit was sometimes brought to town as a rarity, and was called *Rosa de Jericho*. When it is put into water it gradually opens all its seed-vessels, and exactly resembles a *sun*; and when it becomes dry again, it contracts itself, and closes by degrees."

This charming family of plants not only comprises some that are useful for native purposes, but a vast number that are exceedingly *beautiful* and *interesting* as *ornaments* for the greenhouses and flower-gardens of our own country; and it would be both *pleasing* and *instructive* to give the *descriptive particulars* of the whole. That I must leave for another month's Magazine.

One of the most *interesting* kinds is the *Mesembryanthemum crystallinum*, the *Ice plant*, or *Diamond-fig* Marygold, which is so much admired for its *ice-like* covering; the leaves, stems, and buds, are apparently crusted over with *silvery ice*. From its glittering surface it is by some called the "Spangled Beau." This species comes from the neighbourhood of Athens, and is more general in our gardens than any other kind; it certainly is entitled to such introduction.

M. variable is another handsome species. It changes the colours of its flowers; on first opening they are an orange-saffron colour, then yellow, which fades to white, with a tinge of red, and a red mid-rib; lastly becomes a fleshy-white, and red tinged outside.

M. versicolor is rosy-red in the morning, pale silvery in the middle of the day, and rosy-red again in the evening.

Many of the most showy are especially ornamental and showy for

the flower-garden. Just fancy a bed of them being actually *too bright* to look upon (see page 48 of last month's Magazine, where their brilliancy in the Cape of Good Hope is mentioned.) They are admirably adapted for bedding, baskets, vases, and rockwork.

The plants are very easy of cultivation, and although they will not withstand severe frost, they can be preserved through winter with very little trouble.

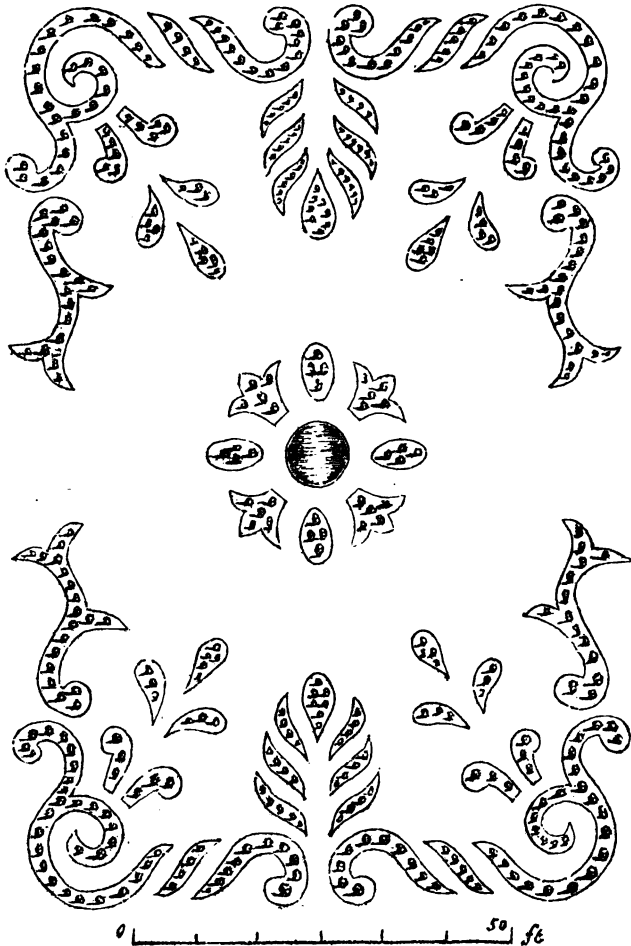
Cultivation. — The best time to increase them is *autumn*, when cuttings should be taken, and be placed in a frame or under a hand-light, in either of which places they will readily root. After pushing roots, they must immediately be potted singly, into sixty-sized pots, and placed in a cool frame or upon the end-shelves in a greenhouse, and have but sparingly of water, as during this season of repose *much water* would destroy them.

Early in March they must be re-potted, in a soil composed of *fresh loam*, a little leaf-mould, and a small portion of sand; after which they must be kept *close* for a few days, and their growth duly promoted there till the last week in April or the first week in May (as the mildness or otherwise of the season dictate), when they may be planted (out of pots) in as *sunny* a situation as possible. It is best to have the bed of compost laid upon a bottom of large pieces of broken stones or bricks, in order to keep the *soil* well drained, and which will consequently be much warmer for the roots, and in proportion promote the *blooming* of the plants. After they are thus planted out, a few hoops should be placed over the bed, upon which to spread a covering, such as a mat or canvass, to protect them during night in case of frost occurring, as of late years the seasons have been late and the weather precarious; and a few short sticks should be pricked among the branches, or be pegged down, to secure them from being injured by wind.

Till the plants root afresh into the soil of the bed, particular attention must be given to let them have a little water upon the old ball of soil, and afterwards as the dryness or otherwise of the summer render necessary. Similar attention as to compost, drainage, and protection from casual frost in spring, is requisite with those plants grown in vases, or upon rock-work, where they are especially interesting and beautiful. In any situation, when in full display of bloom, they present a fine appearance; the rich and varied brilliancy of colours, coupled with the almost solid mass of flowers, renders it gay indeed, and will amply compensate the cultivator for any attention bestowed. A few plants of the most showy blooming, in order to propagate from, may be procured at a trifling cost by those persons who have not a stock at present, or to plant out as above described during the approaching summer.

PLANS OF FLOWER-GARDENS.

No. 14.—By T. RUTGER, Esq.



ALTHOUGH there is a scale given with the accompanying design, a deviation may take place in accordance with the taste of the proprietor, by enlarging the clumps in proportion to the ground given for the purpose. Should the design be laid down on gravel, the scale given may suffice; but if on a lawn, an enlargement of the clumps may take place; and if enclosed with a shrubbery, embellishments of various kinds may be introduced in the interior, which may also take place, should the design be laid down on gravel.

THE RENOVATION OF GRASS LAWNS, &c.

BY MR. PETER MAKENZIE, OF WEST PLEAN, NORTH BRITAIN.

" The spring, the now, the startling spring appears,
The youthful season of reviving years ;
The trees grow fruitful with descending rains,
And, drest in diff'ring greens, adorn the plains."

BUT the dark green colour of the grass in flower-gardens and pleasure-grounds is sometimes long a-coming, although it has a pleasing effect and adds greatly to the beauty of the pleasure-ground and flower-garden.

This often happens when the grass on lawns becomes weak and thin by means of frequent cutting, and little nourishment imparted to the soil ; the consequence is, that mosses take the place of the grass, and unless something is done to arrest their progress, they will soon overpower those plants that were intended to have a permanent place in the meadow or lawn. An American writer remarks, that mosses on meadows, like vermin on cattle, are a consequence rather than an evil ; they indicate a deficiency of stamina, health, or condition, in the field or animal, rather than induce it themselves. But where either exist, they show something radically deficient, which must first be remedied before any useful result can follow. A cultivator may as well leave his money with "sharpers," or his manure heap under a spout, as his meadows in moss, or his cattle covered with vermin. All are spendthrifts together, and if left to themselves will, like Pharaoh's lean kine, soon consume his evidences of previous plenty, and show no equivalent in return. But how are we to get rid of mosses in meadows or lawns ? Let us first see how they get there. The surest way to get rich is first to know how you get poor. Mosses are generally the result of a feeble growth of the grass on a moist surface. The moisture of the land is not of itself objectionable, but decidedly the reverse ; but when the profitable occupants of the soil fail, or become thin or meagre, the profitless are ever ready to come in and supply their places. This is the case with mosses ; and it is not till the cultivated plants have declined that these have gathered strength. Various plans have been used to destroy moss on lawns. Sowing strong quick lime over them when recently mown, or after short cropping by animals, is attended with decided advantage. Guano, when mixed with mould, and sown broadcast, is exceedingly useful ; and so, too, are compost heaps of various kinds ; these help to destroy the mosses by invigorating the grasses. Properly draining, and especially thoroughly under-draining the lands, is one of the most efficient modes of removing mosses and worthless aquatic plants. By carrying off all surplus, and particularly stagnant waters, the atmosphere and heat penetrate the soil and induce a vigorous healthy growth of the cultivated plants, and thereby withdraw so much of the space and food which otherwise would be monopolized by the intruders. Another simple and sure method for improving the growth of grass on lawns is the following :—During the summer season well decayed peat may be dried by exposure

to the sun; when the moisture is well evaporated steep the peat in urine, or drainings from the dunghill, and when the lawn is mown for the last time for the season, the peat may be finally broken and spread upon the lawn; and if it is afterwards raked and rolled, it will be all the better. Such a dressing will improve the grasses during the winter months, and in spring they will grow more vigorously than if more materials had been employed. It is also of importance to have lawns sown with proper kinds of grasses. The following table from "Lawson's Treatise on the Cultivated Grasses," &c., may be of use to those who are about to make improvements in flower-gardens and pleasure grounds. It shows at a glance the kinds and quantities of grass seeds required for sowing; the imperial were for fine lawns, bowling-greens, &c., kept constantly under the scythe.

Scientific Names.	Light Soils.		Medium Soils.		Heavy Soils.	
	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
<i>Avena flavescens</i> ..	1	1	..	..	..	..
<i>Cynosurus cristatus</i>	5	5	6	6	7	7
<i>Festuca duriuscula</i> ..	3	3	3	3	4	4
<i>Festuca tenuifolia</i> ..	2	2	2	2	1	1
<i>Lolium perenne</i> tenui	18	20	18	20	18	20
<i>Poa nemoralis</i>	1½	1½	1½	1½	1½	2
<i>Poa sempervirens</i> ..	1½	1½	1½	1½	1½	2
<i>Poa trivialis</i>	1½	1½	1½	1½	1½	2
<i>Trifolium repens</i> ..	6	7	6	7	6	7
<i>Trifolium minus</i>	2	2	2	2	1	1
	40½	44½	41½	45½	42½	46

The following remarks are added. In cases where primary expense is deemed secondary to ultimate effect, two pounds of the evergreen wood-meadow grass may be added to each of the above columns; and where the ground is shaded by trees, both *Poa nemoralis* and that variety should be substituted for similar quantities of the two *Fescues*, such quantities being dependent on the extent and depth of the shade.

In walks, bowling-greens, &c., which are wished to be kept as dry as possible, especially towards the end of the season, *Trifolium repens* should be sparingly introduced; and when it is intended to mow the grass by machine, instead of the common scythe, greater proportions of the *hard* and *fine-leaved Fescues* may be sown.

"When Damon softly trod the shaven lawn,
Damon, a youth, from city cares withdrawn,
Long was the pleasing walk he wander'd through;
A cover'd harbour closed the distant view;
There rests the youth, and while the feather'd throng
Raise their wild music, thus contrives a song."

His song was of health, and began with

" Here, wafted o'er by mild Etesian air,
 Thou country goddess, beauteous Health repair ;
 Here let my breast through quiv'ring trees inhale
 Thy rosy blessings with the morning gale ;
 What are the fields, or flowers, or all I see,—
 Ah ! tasteless all, if not enjoyed with thee."

MISCELLANEOUS SECTION.

THE FALL OF THE LEAF.—The two most interesting periods to one who is in the habit of associating some agreeable sentiment with the phases of nature, occur when the trees are putting forth their tender leaves and flowers in the opening of the year, and when they are assuming the variegated hues that precede the fall of the leaf. Hence the spring and the autumn have always been regarded as pre-eminently the two poetical seasons—the one emblemizing the period of youth, the other that of old age. But to the eye of the painter as well as the poet do these two seasons offer the greatest attractions. In the spring, while the leaves are bursting from their hibernacles, and unfolding their plaited forms, they exhibit a great variety of tints, which are constantly changing with the progress of their development. In autumn, during a space of about two weeks, they pass through another succession of hues ; and this change, connected with the fall of the leaf, has given rise to many pleasing sentiments, which have been woven into the poetry of all nations. It is a common fallacy to regard those objects as the most picturesque which have the least positive beauty : but landscape painters, actuated by a different opinion, have, for the purpose of adding a picturesque charm to the scenes they pourtray, most frequently chosen the autumn for their representations, and given to their trees the beautiful tints of the declining year.

If we would learn the full comparative value of trees, as ornamental objects, it is necessary to study them under the different aspects they assume during each of the four seasons. They should be observed in May and June, when they are putting forth their leaves and blossoms ; in July and August, when they have completed the growth and maturity of their foliage ; in October, when they are hung with fruits, and are assuming the tints that precede their decay ; and lastly, in December and later, when they appear in their denuded state, and have lost all their beauty, except that of the forms and arrangements of their branches. Under each of these aspects, they are a study which cannot fail to reward the observer, by affording him many new ideas, which will assist him in comprehending the beauty and grandeur of vegetable forms and colours.

The season of the fall of the leaf commences, in general, about the 20th of September, and varying with the character of the weather, continues until near the third week in November. It occupies a space of about two months, and may be divided into three periods. The first includes the time between the 20th of September and the middle of the next month, when the maple, the elm, the hornbeam, the hickory, the beech, and the chestnut, are in their full splendour. During this

period the yellow, orange, and scarlet hues predominate in the tints of the foliage. The second period occupies a space of about two weeks from the end of the first, when the oaks have fully ripened their tints, and many of the trees just named have become leafless. This period is remarkable for a predominance of red, crimson, and purple hues in the colour of the foliage; and it lasts until about the 7th or 10th of November. The third period commences with a succession of severe frosts, that destroy all the remaining tints of the forest, and change them into one uniform and monotonous brown. This period may be said to terminate with the early snows of winter, and is remarkable, in some years, for a series of warm days which have been called the Indian summer.

All those who are accustomed to note the successive changes in the face of Nature, must have observed that the different species of trees and shrubs lose their leaves at different dates in the autumn, some being entirely denuded, while others hardly exhibit any change in their foliage. It may be further remarked, that some species preserve their verdure until their leaves drop to the ground; among which we may class a great proportion of exotic trees and shrubs. Others roll up their leaves into a crisp before their fall, like the most of the herbaceous plants, without materially changing their colour except by fading. Such are the ash, the locust, and the shellbark hickory. The leaves of a third class, without wilting or withering, change from green to some brilliant colour, and make their beauty the harbinger of their decay.

Those trees in general that exhibit the earliest and brightest tints, are the first to lose their leaves. This is observable especially in the maples, whose tints of yellow, orange, red, crimson, and purple, are conspicuous, while the leaves of most other species are still green. No sooner have other trees, for the most part, assumed their autumnal hues, than the maples have already become leafless. While the latter are still wearing their gayest robes we may observe the hues of yellow, orange, and brown of the common American elms. The tints of the elm are neither so brilliant nor so various as those of the maple. They consist only of a few shades of brown and yellow, which partake of that want of brilliancy that characterizes the verdure of the same tree. It is worthy of notice, that while these trees are thus gleaming with gold, the English elm still retains the greenness of its foliage almost as pure as in summer. The same difference may be observed between the greater part of the indigenous trees of America and those of England and the continent of Europe.

This habit of European trees has led many persons to prefer them, for ornamental purposes, to their kindred American species. A few additional weeks of verdure in the foliage of our trees, though it would not retard the approaching cold, would be a prolongation of one of the pleasant advantages of summer. But it ought not to be overlooked, that if the American trees do not continue in leaf so long as those of Europe, they greatly exceed them in the brilliancy and variety of their autumnal hues. The cause of the superior beauty of our autumn hues, is undoubtedly the greater *intensity* of the sun's rays, and the greater

proportion of clear and dry weather, causing the leaves to arrive *sooner* to maturity and old age. Should we, therefore, substitute foreign trees with their prolonged verdure, for our indigenous trees, with their early fading leaf, we should have autumn without its present charms. Nature, in the fall, would then resemble an old man without those silvery hairs, which are the crowning ornament of his years.

Among our trees the maples exhibit the greatest variety in their tints. Of different individuals of the same species, even when growing, side by side, in the same situation, not unfrequently some will have foliage of a bright yellow, others of vermilion, some of scarlet and crimson, while others still retain their summer verdure. In this respect the maples differ from other trees, of which individuals of the same species seldom greatly differ in their tints. Notwithstanding, therefore, the rapidity with which they lose their foliage, these trees are the principal charm of our woods during the first autumnal period. The elm succeeds the maple in the ripeness of its hues and the fall of its leaves. The American poplars lose their leaves about the same time: but their tints, though more brilliant than those of the elm, are confined to the lighter shades of yellow. The birch, the beech, the chestnut, and the hickory, all of which are clad, with more or less brilliancy, in yellows, succeed the poplar. Similar hues predominate in the lime, the larch, the cherry, and the wych-hazel.

But there are several species in which the different shades of red and purple prevail. Among these may be named the swamp hornbeam, which is one of the most brilliantly illuminated trees in our woods. In the shade its leaves are of a bright orange; but when exposed to the direct rays of the sun, they vary from vermilion to scarlet, seldom, I believe, approaching to purple. Like other brightly-tinted foliage, that of the hornbeam falls early in the season, seldom remaining above a week in its full splendour. While the yellow tints predominate in the trees, the reds and crimsons predominate in the shrubbery. Conspicuous among these are all the species of the blueberry and whortleberry tribe, that yield a fairy-like splendour to our wild upland pastures. Equally beautiful and more brilliant are the leaves of the common creeper, that often covers whole trees in our woods, mingling its pure scarlet with the different colours of the tree that supports it. The most of the sumachs exhibit a predominance of purple in the hues of their foliage, mixed with their original verdure. The viburnums and cornels are likewise variously shaded with purple and crimson.—*Hovey's Magazine of Horticulture.*—(To be continued.)

COLLODION, ITS UTILITY IN THE PROCESS OF STRIKING CUTTINGS OF PLANTS.—It is well known to gardeners, and other cultivators of plants, that in the process of striking cuttings of most plants it is essential to success to prevent an undue admission of moisture or air to a cutting through the medium of its *cut base*; and to accomplish this various methods have been tried to seal up the base with bees'-wax, glue, gutta percha, &c.; but these materials soon dissolve, and a space is left, which, before being dissolved the plaster occupied, and thus the cutting was in a worse position than if it had been inserted without such application. A short time back Mr. Low, of Clapton,

thought that if *collodion* was used for the purpose of sealing the base of a cutting, the desired object would be realised, and thus render the much more certain success of cuttings striking root; for as *collodion* is adhesive, impenetrable by water, and impervious to air, it would not only endure, but otherwise answer the desired purposes. He therefore made experiments with it, and states in a paper of particulars, recently read before the Royal Society, "That immediately upon the cutting being severed from the parent stem, the *collodion* was applied to the wound, and then left a few seconds to dry, after which the cuttings were inserted in a pot in the usual manner."

In order more effectually to test the value of the process, duplicates of all the kinds of cuttings under experiment were at the same time *similarly inserted*, but without the *collodion* being applied to them. Also experiments were tried in two different ways, viz., one batch of cuttings being placed on a hot-bed, and another batch inserted in the open ground, without having a covering of glass. It was late in summer when these experiments were made; but double the number of cuttings struck root under the *new method* of treatment to what rooted by the *old process*, being without *collodion*. By the wound of the cutting being *thus sealed*, it is preserved from the injurious effects of excess of moisture, air, &c., until roots protrude through the *collodion*. It is thought likely to be of equal utility in the process of grafting, budding, &c., of fruit and other trees or plants, as Camellias, Rhododendrons, &c. The effect of *collodion* with cut specimens of flowers was tried, and two branches, as nearly alike as could be, were obtained; to one the *collodion* was applied. Both specimens were placed in vases filled with water; those to which the *collodion* was applied faded in thirty-six hours, and many died in three days, whilst those without *collodion* remained at the end of three days fresh and healthy.

We intend to give additional particulars relative to this subject in our next Number. The result of the experiments with the cuttings experimented with was as follows, as given in the *Gardeners' Chronicle*.

First Batch.—All of which were placed on a hot-bed on the 1st of September, and examined on the 1st of October:

STOVE PLANTS.

Number of Cuttings with <i>Collodion</i> applied.	Name of Plant.	Number of Cuttings which took Root.	Number of Cuttings without the Application of <i>Collodion</i> .	Number of Cuttings which took Root.
1	<i>Ixora coccinea</i>	1	1	0
1	<i>Tacsonia miniata</i>	1	1	1
3	<i>Franciscea Hopeana</i>	3	3	0
3	<i>Franciscea Pohlana</i>	3	3	0
2	<i>Gloxinia Maria Van Houtte</i> ..	0	2	1
2	<i>Begonia incarnata</i>	2	2	1
8	<i>Achimenes patens</i>	7	8	6
2	<i>Hoya bella</i>	2	2	1
2	<i>Rondeletia speciosa</i>	2	2	1
2	<i>Allamanda neriifolia</i>	2	2	1

GREENHOUSE PLANTS.

Number of Cuttings with Collodion applied.	Name of Plant.	Number of Cuttings which took Root.	Number of cuttings without the Application of Collodion.	Number of Cuttings which took Root.
6	<i>Boronia serrulata</i>	5	6	0
3	<i>Polygala Dalmaisiana</i>	1	3	0
6	„ <i>grandiflora</i>	3	6	2
6	<i>Verbena luna</i>	6	6	6
1	<i>Chorozema cordata</i>	1	1	0
1	<i>Epacris pallida</i>	0	1	0
2	<i>Leschenaultia formosa</i>	2	2	1
1	<i>Swainsonia astragalifolia</i>	1	1	0
1	„ <i>galegifolia</i>	0	1	0
	<i>Abelia rupestris</i>	2	2	0
4	<i>Plectranthus concolor picta</i>	2	4	2

Second Batch.—Planted in the open ground on the 1st of September, and examined on the 1st of October :

HARDY PLANTS.

Number of Cuttings with Collodion applied.	Name of Plant.	Number of Cuttings which took Root.	Number of Cuttings without the Application of Collodion.	Number of Cuttings which took Root.
12	<i>Garrya elliptica</i>	5	12	1
12	<i>Erica vagans</i>	7	12	4
18	<i>Bupleurum longifolium</i>	6	18	0
12	<i>Laurus foetens</i>	10	12	7
6	<i>Rose, Souvenir de la Malmaison</i>	4	6	3
12	{ <i>Taxus baccata</i> , golden-leaved variety	8	12	4
	Total Number of Cuttings to which Collodion was applied.	Number of Cuttings which took Root.	Total Number of Cuttings without the Application of Collodion.	Number of Cuttings which took Root.
First batch	59	46	59	23
Second batch	72	40	72	19

Collodion is made of *gun-cotton* dissolved in *ether*. It becomes a *clear solution*, and may be purchased in bottles at sixpence per ounce, which in quantity is about two large table spoonfuls, and would be sufficient for application to an immense number of cuttings. The cut end of the cutting being dipped in, say one-eighth of an inch deep, will have, on its being drawn out, a clear, thin, adhesive skin or covering, to that extent, which will be a perfect safeguard.

TREE CARNATIONS.—The vast improvements which have been made in the production of hybrid plants, during the last twenty years, in the *Dahlia*, *Pelargonium*, *Calceolaria*, *Petunia*, *Verbena*, &c., have been generally displayed, as our *Exhibitions* amply testify; but the most extraordinary, I think, has been effected with the *Tree Carnations*. But a few years ago, we had only two kinds, a self-coloured crimson-red, and one with a flesh-coloured ground striped with crimson. Now we have an immense number of varieties, selfs, stripes, blotched, edged, and marbled with nearly all colours; and not only are they handsome, but many of them highly fragrant. They are, too, very easy of cultivation, and may be had in bloom the *entire year*. I possess forty-four varieties, and find them to flourish admirably in the following compost:—Equal parts of a yellowish *fresh* turfy loam, well broken in pieces by the hand, and kept rough; and well rotten leaf-mould and *old* dryish cow-dung, with a sprinkling of silver-sand and bits of charcoal and broken pot; these, well incorporated together, and having a free drainage. Those *grown in pots* do well in it. Last spring, however, I turned out a quantity into an open border, in front of a low brick wall, of good loam, and mixed it with the above-named manure; the plants were trained to the wall, which had a *south-west* aspect, and they bloomed most beautifully from May to the end of November, when I had them taken up carefully and potted; and they have continued to bloom during the winter in my (rather warm) greenhouse. They are readily propagated by cuttings of the *half-ripened* shoots, cutting through close under a joint, dressing off a few of the lowest leaves, and inserting them in a pot well drained, upon which is placed good compost, and about three inches of silver-sand above it, in which the cuttings are inserted. If they have a little bottom heat, it contributes to an early striking of roots, and they may or may not have a bell-glass over; but, in either case, shade from mid-day sun. Cuttings will strike freely during spring or summer; but March and April is the best period. The plants grow quickly, so that you may have them any height you please; but to keep them *bushy*, the leads must be duly stopped, and then vigorous low plants will be obtained. All are free bloomers, beautiful and ornamental; and as they may be grown successfully in a greenhouse pit-frame, or even dwelling-room window, every lover of flowers ought to have some of them.—*Dianthus*.

CULTURE OF THE CHINESE PRIMROSE.—I generally sow my seeds about the beginning of August, or a little earlier, in shallow pans, in light sandy soil, without any manure. They are sown thinly, and pressed down on the surface, so as just to be covered with the soil. After a gentle watering, the pans containing the seed are removed to a hotbed, where they remain until the young plants are about an inch in height. At this stage, they are pricked out into the same sort of pans, an inch apart, adding this time one-third leaf-mould to the soil. The plants are put into the hotbed again, until they have attained the height of two inches, when they are taken out of the pans, and shifted into five-inch pots, that have been well drained. The compost for this and their final shift consists of equal quantities of cow dung, two years old, leaf-mould, peat earth, and sandy soil. After potting, the

plants are removed into a cold frame, with an eastern aspect. The lights are kept close for a few days, and the plants are shaded from the mid-day sun until they commence growing. Air is then admitted, gradually at first, but as soon as I perceive the plants to be fairly in a pushing state, I ventilate freely. The sashes are, however, always put on when it rains, for nothing is so injurious to primulas as water overhead, at any stage of their growth. As they begin to fill their pots with roots, I gave them liquid manure once a week, made from pigeon's dung. I permit the first flower stem to rise, but only for the purpose of judging of the merits of the flower. As soon as that is decided, the good flowers are picked out, and when the pots are filled with roots, the plants are finally shifted into eight or twelve-inch pots, and treated in precisely the same way as at the former shifting, and with the same situation and aspect. They remain in the cold frame until the middle of October. After that, they are brought into their winter quarters, to flower in the greenhouse. As soon as the plants have stopped growing, I withhold the dung water, as a continuance of it would be likely to destroy them in the winter months.—J. H.—*Gardener's Chronicle*.

CALCEOLARIAS.—The *Show Class* I find to flourish quite extraordinary, when growing in the following compost, &c. I have a liberal drainage of crocks, upon which I place a little rough moss, then fill up with the compost, which consists of *equal parts* of a year old *turfy-loam*, well broken by the hand, well decayed leaf-mould, and old rotten pulverized cow-dung (hot-bed dung will do if this is not provided), and a sprinkling of bits of charcoal and silver sand. In potting, I place them rather low in the pot to admit of an addition of fresh compost, as many roots often afterwards push from the bottom part of the main stem, and greatly contribute to vigour. The plants require a liberal share of syringing over-head, as well as under the foliage; but when in bloom, the flowers are avoided, and the plants require shading from ten in the morning to four in the afternoon. When blooming is over, I cut the bloom branches off close to the foliage, and plunge the pots up to the rim in fine-sifted coal-ashes in a border where there is *shade from sun*, but a freedom of air, and fill up with rotten leaf-mould, so that the stalks of the lower shoots of the plants are partly in the soil. They soon throw out roots, and when sufficient, I have them potted off singly, and put under a close hand-glass in a shady place; if now exposed to a current of wind it would be likely to destroy them. I shift any vigorous ones into a size larger in October, when I take all in to preserve through winter, for if kept in too small pots, it often causes the plants to run into bloom prematurely. During winter I keep them in a cool, but quite dry, pit frame, rather near to the glass, and give all air possible, so as to preserve them from frost.

Seedlings.—I sow the last week in July, pot as soon as large enough, keep them in a low frame, close till well established, and then give abundance of air, and in winter they are kept with the stock plants, in the pit frame. There is a hot-water pipe along the front (outside) of this pit, so that I give a little heat to dry up, if necessary, or just to keep out frost.—JAMES BUCKLEY.



FLORAL

OPERATIONS FOR THE MONTH

IN THE FLOWER GARDEN.

WE refer our readers to the last month's Calendar for many things which require attention now. Finish pruning *Roses*. Many kinds of shrubs may be increased by layering, similar to *Carnations*. Perennial herbaceous plants increase by division. Hardy annuals, to bloom early, may be sown. Bedding plants must be provided by sowing, striking cuttings, repotting last autumn-struck cuttings, &c. Sow Stocks, *Asters*, &c., in pots or beds.

FLORISTS' FLOWERS.—*Auriculas* and *Polyanthuses*: admit air on all favourable occasions. Manure-water should be given once a week. Sheep's-dung, put into a tub, and soft water poured upon it, in quantity so as to form a strong liquid, is very serviceable. The dung must be collected for a few weeks before using. Old cow-dung will also answer the same purpose. Sow seeds of above. If too many blossoms show, thin them directly. *Anemones* and *Ranunculuses* must be finished planting immediately. If no bed has been prepared for them, it may be made by taking out the soil to the depth of fifteen or eighteen inches, and replacing it at the bottom with a layer three or four inches thick of cow-dung, and filling up with soil composed of decayed turfs taken from a loamy pasture. Such as were planted in the autumn will now be making their appearance above ground. It is very necessary to keep the soil closed firmly round the crown of the plant; when this is neglected, the bloom suffers. *Tulips* require continued attention, as directed last month. Any that happen to be affected with canker will appear sickly; the roots should be examined, and the damaged part cut clean out. If left exposed to sun and air, the parts will soon dry and heal. Avoid frosty air getting to the wound by exposure. If by any casualty the plants are frozen, then, early in the morning, sprinkle the tops over with cold water, and keep them covered over for an hour or so before they be exposed, as the sun must not be allowed to shine upon them until the frost is all out. *Carnations* and *Picotees* may, at the end of the month, receive their final shifting. The pots known as No. 12's are the size usually employed. In potting, place at the bottom two inches deep of crocks, and give free drainage. Use a compost—which is best if it has been previously prepared and become well incorporated together—of these proportions,—two barrows full of fresh yellow loam, three of well-rooted horse-dung, and half a barrowful of river-sand, well mixed; plant in it *without sifting*, by breaking very well with the spade. Place the plants in a sheltered situation out of doors, but where they will have plenty of air. Where frost has disturbed the roots of *Pansies* in beds, they should be pressed into their places, and a top-dressing of rich mould given to them all over the bed. They must be screened from cutting winds by fir, yew, or whin branches. In forming new beds, the situation must be where there is the benefit of free air. Plants in pots, under glass, will require shifting into larger sizes; for as this is the period when they begin to grow, they will soon become weak, and bloom out of character, if confined in small pots. If beds of *Pinks* were not planted in autumn, early in this month they may be. In removing the plants, whether out of pots or open ground, be careful to retain all the ball of roots, and as uninjured as possible. Protect beds from cold easterly winds. Press the soil firm round the plants.

IN THE FORCING STOVE.

Sow seeds of any tender and half-hardy annuals that have been omitted. Sow liberally of *Cinerarias* and *Chinese Primroses*, for if the plants be properly attended to, they will produce a fine bloom for autumn. Annuals sown in frames—*Cockscombs*, *Balsams*, *Thunbergias*, &c.,—if large enough to pot, should be in 60-sized pots.

Sow seeds of *Dahlias*, *Fuchsias*, &c. Seeds of most greenhouse plants will do well if sown now. Repot and forward *Amaryllises*, *Achimenes*, *Gloxinias*, *Gesnerias*, &c., as directed last month. *Ipomeas*, *Echites*, and similar plants, may be trimmed in, disrooted when necessary, and brought here to excite early growth. *Ixoras*, and other plants for exhibitions, duly attend to in tying out, &c. Repot any plants requiring; prune in, &c.

IN THE GREENHOUSE, &c.

Continue to admit all air possible. Repot the various inmates, as required, from time to time, and examine to see that the drainage is free. Supply *Cinerarias* with manure-water occasionally. Save them from green fly; smoke or tobacco-water must be applied at the first attack. Pot off seedlings, &c., for successive bloom. Immediately stop the shoots of *Pelargoniums* which are to bloom from June, in order to induce new lateral ones. Let *Pelargoniums* have plenty of air, but close up early in the afternoon. Syringe overhead twice a week after shutting up. In watering, give enough to moisten the entire soil. Seedling *Calceolarias* shift now into their blooming pots, and often syringe them over head.

Cupneas, *Verbenas*, *Petunias*, *Fuchsias*, and other young stock, must, as growth advances, have the shoots stopped, which will cause them to be bushy, forming cuttings of the young shoots.

Camellias exhausted with flowering should now receive a little extra attention; remove them to a cooler situation for three weeks, on the principle of slow breaking, and give the root a chance of overtaking, in some degree, the expenditure which has taken place in the system. Any pruning necessary perform at this time; no plant can succeed better, after judicious pruning, than the *Camellia*.

See that *Lilium speciosum*, &c., are not saturated by watering; place them in a light airy situation. *Chinese Primroses* give manure-water twice a week.

BRIEF REMARKS.

CERASUS ILLICIFOLIUS, OR EVERGREEN HOLLY-LEAF CHERRY OF CALIFORNIA.—This beautiful ornamental evergreen we now have in our English nurseries; it was originally found within the limits of San Francisco, on the North Beach side of our city, below Clark's Point, perched upon the brow of one of the loftiest bluffs of the Bay. At this point the trees are young and thrifty, shooting up erect and spreading branches, with a dense, dark glossy green foliage—often bent back, enclosing or hiding their twigs from the casual view; the leaves thus arranged alternately, in four ways loosely imbricated, like tiles on a roof, give the young branches a somewhat stiff, columnar appearance.

At Capt. Maltby's rancho, just below Point Jackson, in a sheltered nook of the Bay, it is much larger, rising to thirty feet in height, and about a foot or more in diameter. Here we observed one of those remarkable, fantastic freaks of nature so common on the Pacific; numberless limbs on all parts of the tree were seen growing together, often to upwards of twenty, all united, forming singular fan-shaped radiations of flat twigs from one to two inches in width, and no thicker than a quill! Some fine specimens of the Holly-leaf Cherry are to be seen on the road between Monterey and the Soledad Mission; it is also said to be common about the Mission of San Antonio, and along the western slopes of the mountains as far south as San Bernardino.

From the general appearance of the foliage it naturally suggests to every one, at first sight, the idea of its being a species of *Holly*! This mistake we were well-nigh falling into on seeing it for the first time in mid-winter, but tasting (as we are wont to do) soon revealed the true cherry flavour. It is from this circumstance named *Cerasus Illicifolius* (from *Ilex*, the Holly, and *folius*, a leaf—or conjoined, signifying *Holly-leaf Cherry*). This species of evergreen cherry bears a corresponding relation to the *Sylva* of the Pacific that the evergreen cherry of the south does to the Atlantic; we allude to the *C. Caroliniana* or "Wild Peach," as it is called in the South-western States (owing to the strong peach-kernel odour, &c.—Hence we often hear of the "wild peach lands;" we designate certain rich, light, and generous soils. In some sections it is better known as the "Mock Orange," also "Cherry Laurel.") Both these species belong to the very natural section of *Laurocerasus*, along with the family of the bitter almonds. This subdivision of the genus *Cerasus* is distinguished by the racemes of flowers springing from the axils or forks of the old persistent leaves of the growth of the former season, as we see exemplified in the species before us. The California evergreen cherry, like its allied species beyond the mountains, is commonly a small tree, very much branched; the leaves are large, on short stems; broad, roundish heart-shaped; spinosely or prickly-toothed, veiny, smooth and shining above, and of a rigid, leathery texture; margin wavy, sub-folded, and bent back on its stem. The flowers are in dense racemes (like the black cherry), about as long as the leaves, though when mature they are two or three times as long.

The fruit is by far the largest of any known indigenous variety; specimens are brought to our market one inch and an eighth in diameter, and about one-eighth of pulp: the form is oval, and somewhat pointed, the point turned to one side; dark purple, or black; the flavour a bitter-sweet, and astringent—not very palatable to most persons. The Indians, however, crush the fruit, and make a kind of bread, of which they appear to be extremely fond; it is called by the natives *Isalay*. The stone of this fruit is very large, and in some localities the pulp is meagre and rather dry.—D. KELLOGG, in the *Pacific*.

CYPRIPEDIUMS.—In some recent notices of new and rare plants I observe particular recommendation of *C. venustum* and *C. insigne* is given, their singular beauty, as well as being *winter blooming*, and easy of cultivation, combining to render these Lady's Slippers truly valuable. I have grown these species along with *C. calceolus*, pubescens, spectabile, Javanicum, Nepaulensis, and barbatum, with great success, and I find them to flourish surprisingly in the following kind of compost:—One part of good turfy loam, which has been laid in a heap for several months, and turned, chopped, &c., two or three times, to which I add three parts of *good peat*, and a liberal sprinkling of the white sand, along with bits of broken pot and charcoal. These materials being well mixed, and having a liberal drainage, with due attention to watering, promote quite an extraordinary growth.—*Florista*.

CONIFEROUS TREES.—This term is in frequent use, but I am certain it is not generally understood as to what trees it properly applies. I therefore beg leave to state, that it refers to those trees which bear their seeds in CONES (commonly designated *fir-apples*); they may be such as produce them *erect, drooping, or inclining* to either direction. The genera comprised therein is thus arranged:

SECTION 1.—CONIFERÆ VERÆ.—The cones generally having numerous scales arranged on a more or less *elongated* axis, of which are the PINUS, as Hemlock Spruce, Larch, Silver, Scotch, Spruce, Deodar and Weymouth Pine, Fir; also Pinaster, Araucaria, Cedar of Lebanon, Cunninghamia, and others.

SECTION 2.—CUPRESSINÆ.—Cones with few salivate or peltate scales, on a *depressed* axis, of which are the Arbor Vitæ, Cypressæ, White Cedars, Cryptomeria, and others.

If approved, I will give a *particular description* of all the best of the FIR-TRIBÆ, as well as of Juniperæ and Taxinæ, or Yew Order, a small article for successive numbers of this Magazine. It will be a guide to purchasers selecting the best and most distinct.

Whilst on the subject of *Coniferous trees*, &c., I beg to state, that many errors have been committed in planting the NEW KINDS, of recent introduction; they will not succeed long if planted in *wet ground*; indeed, I had a large Araucaria growing well in a low part of my shrubbery, and from the circumstance of an overflow from a river (arising from the bank giving way), there was a standing water for about a week the early part of this winter, and now the plant is perishing. It is essential that the substratum should be a dry one, and if not naturally suitable, preparation must be made by draining, &c., before planting; if not, the lower branches will soon show traces of decay, and the whole plant ere long become discoloured. The Cryptomeria Japonica very soon gives evidence, as well as the Araucaria. Let the groundwork be good, and all above will give proofs of its suitability, and will thrive successfully, even in any *exposed* situation.—*Arboreu*.

POTTING CARNATIONS.—Early this month is the time for potting, and, of course, previously, such varieties as are required to replace lost sorts, or to add to the present stock, should be procured. In selecting plants, the largest are not always the best, but frequently become "gouty," and die; a moderate strength, of a good clear colour, and free from "spot," is the most likely to give satisfaction. There are two systems of potting practised; one is, to put three plants into a pot, and the other, to put a pair. In the latter plan they are more easily moved about, and in the former they make a greater show, often having three or four blooms open instead of one; so on this point every one may be safely left to their choice. The soil, and mode of potting, are important; the soil should be a strong rich loam, the manure should be perfectly reduced to mould, and thoroughly incorporated. If your loam should not be rich enough, a portion of old cow-dung may be well mixed and rubbed into it; and if the loam has had no previous mixture of manure, two parts loam and one of old cow-dung may be used; before using, it must be thoroughly examined, little by little, to make sure that there are no wire-worms in it, for one of these pests, however small, introduced into any of the pots will ensure the destruction of the plant. Drain the pots with about three-fourths or one inch of drainage, and fill them with soil sufficiently high to receive the plant, and press the soil into the pot to make it firm.—*G. H.*

THE PRESENT BEAUTY OF THE WOODS AND HEDGES.—I am a London resident clergyman, with but few opportunities of enjoying walks in the country; but recently visiting for a week in the neighbourhood of Dorking, Reigate, and Godstone, in Surrey, I was much delighted in my perambulations with the profusion of Primroses which, in some instances, composed a close carpet of bloom to entire woods of large extent, as well as adorning the banks of the hedges and road-sides. The perfume, too, was most delicious. The *Alders* and *Hazels* I very much admired; the profusion of drooping *Catkins* were exceedingly graceful and ornamental, affording a rich treat to a contemplative mind. It brought to my recollection the following beautiful lines of the poet, which added to the pleasure I had previously enjoyed :

" Now hazel catkins, and the bursting buds
Of the fresh willow, whisper'd Spring is coming;
And bullfinches forth flitting from the woods,
With their rich silver voices; and the humming
Of a new-wakened bee that pass'd; and broods
Of ever-dancing gnats again consuming,
In pleasant sunlight, their re-given time;
And the germs swelling in the red shoots of the lime.

" All these were tell-tales of far brighter hours
That had been, and again were on their way;
The breaking forth of green things and of flowers
From the earth's breast; from bank and quickening spray,
Dews, buds, and blossoms, and in woodland bowers,
Fragrant and fresh, full many a sweet bird's lay,
Sending abroad, from the exultant spring,
To every living heart a glad some welcoming."

A Citizen.

FLOWER GARDEN ORNAMENTED IN WINTER WITH EVERGREEN SHRUBS.—A pretty flower garden, in connection with one of the Lodges, has its beds closely filled with the shrubs, &c., as named below. The plants are from one foot to two, *bushy*, and the appearance is admirable, producing a cheerful effect, and well worth imitation.

Phillyrea, Aucuba, Lauristinus, Narrow-leaved Dwarf Laurel, Portugal Laurel, Red Cedars, Mahonia, Holly, Berberis, Arbutus, Heaths, Irish Heath, Box, Chinese Privet, Pinuses, Rhododendrons, Arbor Vitæ, Cotoneasters, Double Whin, Andromedas, Rosemary, Hemlock Spruce, Juniper, Yew, and White Cedar. —*Kew.*

HOLLYHOCKS (*Clericus*).—Your old roots will soon be pushing young shoots; when about three inches long, cut some of them off close to their origin, insert one of each in a small sixty-pot, in equal parts of loam, leaf-mould, and rough sand; place them in a cool frame, shade from sun, and keep the frame close for ten days; then give air gradually. They will be rooted in five or six weeks, and re-pot when required. Such plants will be fine to plant out in October for next year's bloom.

CORREIA (*Clericus*).—They bloom through the entire winter and spring, and are highly ornamental for the greenhouse or sitting-room. There are more than thirty kinds, of various colours and forms, as red, white, green, crimson, cream, pink, purple, sulphur, rose; most of them have blossoms of two or three colours. They flourish best in the following compost: three parts of good fibry turf-peat, one part of good turfy-loam, a year old; to which add a liberal sprinkling of silvery sand, and some bits of charcoal or stone, all to be well broken up, not sifted.

JAPAN LILIES.—*Lilium lancifolium*, &c.—When grown in pots, to make a fine show, the pot should be from twelve to fifteen inches across, and rather deeper than usual. A liberal drainage must be given, placing moss upon the crocks, then fill up to six inches below the rim, with a compost of equal parts of good turfy loam, rough fibry peat, and well-rotted cow-dung, with leaf-mould for the third part; then press firmly into the top of the compost three or four bulbs at equal distances, and just cover the bulbs. When the stems have risen some height, and rootlets just begin to push from the stems, fill the pots up nearly to the rim with the same compost. Water in proportion to growth, every third watering to be with liquid manure of medium strength. Let the plants be where they can have abundance of air, so they are drawn up, but grow robust. A frame deep enough will do, or the most suitable place in the greenhouse.—*A Nobleman's Flower Gardener.*





Polygonum vacciniifolium.



APRIL, 1854.

"Hail, April, hail! With cheerful tone
I bid thee welcome: not alone,
For thou com'st and bring'st along
The sight, and smell, and tuneful song,
Of leaf, and flower, and mingled hue,
And many a plumed warbler new:
But that, with holy wisdom fraught,
Thou wak'st, withal, the grateful thought,
That when these pleasant things are o'er
Things still more pleasant are in store."

ILLUSTRATIONS.

POLYGONUM VACCINIIFOLIUM.—WHORTLE-BERRIED KNOTWEED (*Persicaria*).

"——— Their rise they boast
From India's deserts, or Columbia's coast."

THIS neat and handsome blooming plant was first discovered by Dr. Wallich's collector, Mr. Blinkworth, at Bhuddrinath. Major Madden, too, found it in the country extending from Buschur to Kumaoon, at elevations from 11,000 to 13,000 feet above the level of the sea, and both Dr. Hooker and Dr. Thomson met with it in eastern and western Himalaya. Dr. Royle, however, first introduced it into England. It is a very free-growing, hardy, herbaceous perennial, the stems usually rising about five to six inches high, but by growing it in very *rich* soil, it will rise even to a foot high. It is perfectly hardy, a low-growing neat plant, and by its numerous slender stems, trailing along the ground, and rooting at the joints, it soon forms a spreading compact patch. It is a most profuse bloomer, and the leaves are almost concealed by the very numerous spikes of bright rosy-red coloured flowers. It blooms continuously from Midsummer to the end of November, and even later when the season is favourable. It is a charming plant for a *small* bed, and if raised gradually to the centre, will have a pretty effect; or having the soil richer at the middle portion than the sides,

the plants will rise higher in proportion. This method is best when the season proves very dry, unless, in the former case, due attention is given to watering. It makes, too, a very pretty edging to a bed or walk-side, and is easily kept to any desired breadth; also suits in a vase or urn of plants, or in a moist part of a rock-work. It will certainly become a great favourite, and merits a place in every flower-garden, and as it can be had at a cheap rate, we doubt not will soon become an ornament in every one.

The common garden *annual*, *Persicaria*, *POLYGONUM ORIENTALE*, too, is, when well grown, a very elegantly handsome blooming plant, and entitled to a place in every flower-garden or border. Scarcely any plant equals both the brilliant red flowering species, or the delicate white-flowered variety, and when in contrast they have a pretty effect. A number of it are grown in the beds in the Royal Gardens at Kew, and according to the poverty or richness of the soil is the stature of the plants, the largest growing about four feet, and having fine branching heads, produce a charming appearance, as also they do when even of the lowest size, about two feet. They are easily raised by seed sown in the borders in spring, and continue to bloom till the end of Autumn.

The celebrated botanist, Tournefort, first noticed it growing in the Prince of Teslis's garden, in Georgia, and he afterwards procured seeds from the garden of the monks of the three churches near Mount Ararat, the spot on which the ark constructed by Noah is supposed to have rested, and, in consequence, the *Persicaria* has been denominated the "*Emblem of Restoration*."

The Duchess of Beaufort appears to have been the earliest cultivator of it in England, it having been introduced by her grace in the year 1707; and it is recorded, that in her grace's garden the plants were allowed to scatter their seeds in autumn on the soil, which being dug in a few inches to protect them in winter, the plants spring up early in spring, and being in rich soil attained the height of from eight to ten feet, with spreading branches in due proportion.

In order, too, to form them into such tree-like specimens, at an early period of their growth, some of the lower side shoots were cut away, and, by a little successive attention, very admirable plants were produced. We have seen large plants of them rising up in the shrub border, and the elegant branching heads of rich-red flowers spreading between the shrubs, made a beautiful contrast with their green foliage, and continued ornamental through summer and autumn.

NOTES ON NEW OR RARE PLANTS.

EXACUM MACRANTHUM, LARGE-FLOWERED. Natural Order *Gentianeæ*.—This very lovely flowering plant is a native of Ceylon, seeds of which were sent, two years ago, by Mr. Thwaites, to the Royal Gardens at Kew, and to the Glasnevin Botanic Garden, Dublin; in the latter it has bloomed. It has been cultivated hitherto in the stove, but there is reason to suppose that it will prove to be an *annual*, or *biennial* at most, and probably would succeed the same as our tender

annuals which are planted out in May, and flourish through the summer. The stem rises about half a yard high, copiously leafy below, but more apart upwards, terminating in a corymbose head of flowers, each blossom being five broad-petalled, two inches across, of a deep rich blue-purple colour, and having large bright yellow stamens, produce a striking contrast. It is a valuable acquisition, and merits a place in every stove, greenhouse, and flower-garden. The flowers are much like those of the *Solanum Amazonicum*.—(Figured in *Botanical Magazine*, 4771.)

PITCAIRNIA MUSCOSA, *N. O. Bromeliaceæ*.—Supposed to be a native of Brazil, but was sent from St. Petersburg to the Royal Gardens at Kew. It is of the pine-apple plant appearance, narrow leaves, and the flower stem rises about twice the length of a leaf, terminating in spikes of from six to ten flowers, each blossom about two inches long, having three petals; but they are so united together as to form a narrow tube of a red colour. It has bloomed in the stove.—(Figured in *Botanical Magazine*, 4770.)

SACCOLABIUM DENTICULATUM, *N. O. Orchideæ*.—A stove orchideous plant, which is said to be a native of Eastern Bengal. The late Rev. John Clowes bequeathed his collection of plants to the Royal Gardens at Kew, and this was one thereof. The stems grow about nine inches long, and about as thick as a quill; leaves rather fleshy, about five inches long, lance-shaped, and about one broad at the widest part. The flowers are produced in a corymbose, or almost umbellate, raceme, each containing from eight to a dozen blossoms. Each blossom is about three parts of an inch across, outwardly green, within of an olive-brown, most beautifully spotted with bright-red. The labellum is white, tinged with yellow, and the disc of the lamina is dotted with red. (Figured in *Botanical Magazine*, 4772.)

BEGONIA LAPEYROUSIA.—The plant combines flowers as beautiful as those of the *B. incarnata*, with the vigorous habit or growth of *B. hydrocotylifolia*. The plant is almost covered with its abundance of flowers, of a handsome, delicate pink colour. It is worth a place in every collection.

BEGONIA, New Species from Ceylon.—The foliage is quite a rival to that of the handsome *B. Thwaitesii*, being beautifully speckled and spotted with metallic-like silvery-white. It is in Mr. Van Houtte's collection.

CALADIUM METALLICUM.—A species from Borneo, with beautiful large leaves, having a dark metallic hue.

CEREUS MAC DONALDII.—This magnificent night-blooming *Cereus* we noticed at length in our last Volume, page 99. It merits notice, too, in our present year's Volume. The flower is *fourteen inches* long, and as much across the front when fully open. The tube is green, tinged with brown. At night the blossom expands. The calyx sepals spread and reflex, *red* at the outer side, and orange inside. The petals are white, beautifully tinged with *primrose*, and form a broadish cup inside the deep-coloured sepals. The numerous rich yellow stamens form a circle around the yellow-rayed style. It is a superb species, trained against the back wall of the Cactus house in the Royal Gardens

of Kew. No doubt it would succeed well similarly trained in a dry greenhouse of medium warmth, and it merits a place in every one.

HIBISCUS VULPINUS (Synonyme, *H. astræpæifolius*.)—The leaves are of an *enormous* size, very similar to those of the *Astrapæa Wallichii*. We have not seen its flowers.

MARANTA WARSEWICZII.—The leaves are in size and form similar to those of *M. zebrina* (the zebra plant of some.) The surface is of a rich velvet, beautifully shaded with yellow, upon a deep rich green. The plant has much the habit of a *Heliconia*, and is a most magnificent species. It is in the possession of M. L. Mathieu, of Berlin, and plants, it is expected, will be offered for sale next May. It merits a place in every stove or warm greenhouse.

ACACIA PETIOLARIS.—The leaves are remarkably grand, each being very large, and have an immense number of what are generally termed small leaves, which are thick and strikingly distinct from all others. It is a fine conservatory plant.

ESTERHAZIA SPLENDIDA.—This most beautiful flowering plant is a native of Brazil. It forms a very neat bushy shrub of from two to four feet high. The leaves are in form like those of the *Lavender*, except a little shorter, and of a deep green colour. The flowers are produced in terminal large panicles of forty or more flowers in each terminal head. Each flower is funnel-tube shaped, an inch and a half long, with a five divided limb (the end of the blossom) an inch across, of a rich orange-scarlet colour. It is a free-growing plant, and blooms most profusely; it continues in blossom for a long period. Mikan states it grew vigorously on the margin of the river. Libon states he found it flourishing on the plains and sides of the forests.

It merits a place in every greenhouse, and if turned out into the open ground in a sheltered warm situation early in May, it will bloom throughout the summer. Its generic name was given in compliment to Prince Esterhazy.

METTERNICHIA PRINCIPIS. *N. O. Solanaceæ*. (Synonyme, *Disianthus ophiorrhiza*.) This pretty flowering shrubby plant was also discovered at the same time, and near to the *Esterhazia* last noticed. The leaves are much like a small *Lauristinus* leaf. The flowers are produced in terminal racemes, of from four to six blossoms in each. Each flower is funnel shaped, nearly three inches long, and two inches and a half across the mouth. White. It blooms freely, and is a very ornamental plant in a collection. It flourishes either in the stove or good greenhouse, and merits a place in either. Its name was given in compliment to Prince Metternich.

PÆONIA ARBOREA GERMANICA.—This magnificent TREE PÆONY has been received by Mr. Van Houtte, from Japan, from whence it had been forwarded by Dr. Von Siebold. It is said to form a robust tree, of fifteen feet high, and spreads in due proportion. The flowers are large, *double*, deep red, or having a shade of three colours, and highly ornamental. The young foliage in spring is not injured by the cold air, as the kinds we possess in England are liable to; but its stout leaves endure without the least injury being sustained. It merits a place in every suitable garden in this country.

REMINISCENCES OF MY EARLY DAYS AT LONGLEAT.

BY THOMAS RUTGER, ESQ.

REMINISCENCES of former days bring to my recollection old associations, especially those regarding my juvenile years, which were spent at LONGLEAT; consequently, anything that emanates from thence is to me highly interesting, and not among the least is that which is connected with gardening, having been associated with it for a long period. It is, therefore, with pleasure that I see you have contributors from the place of my birth, from whom I trust you may receive many valuable articles for the pages of the CABINET. Enriched as Longleat is with a beautiful flower-garden, articles almost *ad infinitum* might be drawn out of it, interesting as well as instructive, for your valuable periodical.

I was always passionately fond of plants. During my youthful days at Longleat, I had made over to me, during the winter, twelve garden-lights, with their frames, wherein to stow my plants, when, during frosty weather, I was filled with care how to keep out the enemy; mats, with hay, &c., were in high requisition; and nothing could give me greater pleasure than in accomplishing my wishes, in which I generally succeeded.

During these halcyon days, in order to improve my collection of plants, I annually paid a visit to Stourton, the seat of Sir Richard Hoare, about seven miles distant, where the gardener was exceedingly kind, by furnishing me with cuttings of various kinds, particularly of Geraniums, which, even in that day, was a favourite plant at Stourton, and where varieties were continually raised by Sir Richard, who, in his day, was indefatigable in improving his stock. Some of the varieties which he raised were considered first-rate for many years, which I dare say is in the recollection of many; and I question that if, in the present day, some of the varieties now grown are not descendants from some of those raised at Stourton.

It would be out of place here to expatiate on the beauties of Longleat, dedicated as the CABINET is principally to floriculture, otherwise a lengthened article might be given, as there are but few places which can boast of such a variety of scenery—where an ample park, with hill and dale, wood and water, and extensive views in constant variety, are presented to view; added to which, the interesting and picturesque parish of Horningsham adjoining, and forming a part of it, with its several hamlets, adds considerably towards making it one of the most charming places to be visited in the west of England.

[We shall have great pleasure in inserting any particulars relative to Longleat, which Mr. Rutger may please to favour us with, for we are certain it will be both useful and interesting to our readers.—EDITOR.]

REMARKS ON JUSTICIA CARNEA.

BY AN AMATEUR CULTIVATOR.

I have several times noticed that this very beautiful blooming greenhouse plant has been recommended to the readers in the

Monthly Notices of New or Rare Plants; allow me to add my humble testimony, too, of its merits. It is a charming plant for autumn, winter, and spring bloom—and by suitable treatment it is a summer's ornament also. I have the original, true *Justicia carnea*, bearing very large heads of long tube-shaped flowers, of a fine pinky-flesh colour, and a variety of it called *J. carnea rubra*, the flowers being of a salmon-red colour; both are entitled to a place in every greenhouse, or stove also—for they flourish in either. The plant is most readily cultivated, and increased freely by cuttings. It flourishes in a compost of equal parts of rich fibry-peat and loam, with a sprinkling of gritty sand, and fine bone-dust. It must have a free drainage, and occasional watering of liquid manure. In a recent number of the *Gardener's Chronicle*, reference is made by a correspondent to a magnificent specimen which had been grown in the establishment of Mr. Catleugh, under the management of his plant cultivator, Mr. M'Intosh, and which was exhibited at the rooms of the Horticultural Society in Regent-street. The treatment pursued by Mr. M'Intosh is given in his own detailed account. The specimen shown was three feet high, four feet across, and covered to the edge of the pot with its fine heads of flowers, of which there were 156. The following are the particulars Mr. M'Intosh gave:

"The plant was struck in April, and shifted into a 7-inch pot in August, in which it was wintered, keeping it in a cool house, and rather dry at the root. In the beginning of March it was shifted into a 15-inch pot, and placed near the glass, in a house where the temperature ranged from 50° to 60°, with fire heat. Here it was afforded a slight bottom heat, a moist atmosphere, and a free circulation of air whenever the weather would permit. This plant being impatient of an excess of moisture at the root, water was applied very sparingly to the soil, until it was evident from the growth of the shoots that the roots had got good hold of the fresh soil; indeed, beyond syringing morning and evening, very little water was given. The plant is a very rapid grower, and very much inclined to become leggy and thin at the base, which stopping will hardly prevent, as the back buds do not break freely, and the centre shoots always have an inclination to take a decided lead over the others. To remedy this, the shoots were pegged down, bringing them almost close to the surface of the soil, which caused the back buds to push, and when the points of the old shoots turned up and showed a tendency to grow too fast for the others, they were stopped, and any shoot towards the centre, which seemed inclined to rob its fellows, was pegged down, so as to equalise the growth. Early in May the plant produced ten fine spikes of blossom, and was removed to the flower-house, observing, of course, to prepare it for the change. When the beauty of the flowers was over, the spikes were cut off, the shoots shortened, cutting out some of the weakly ones, and it received no water at the root for some ten days, and was placed in a cool airy position. It was now returned to the house in which it was previously grown, freely supplied with water at the root, and received the same attention as to pegging down the shoots, with the view of equalising the growth. The weather being now warm, the lights were entirely

drawn off on bright hot forenoons, but they were replaced early in the afternoon after syringing, thus maintaining a moist growing atmosphere at night, and whenever it could be done, avoiding, at the same time, the etiolating effects of a hot shady situation. The buds broke very freely under this treatment, and strong short-jointed shoots were produced. In July it bloomed a second time, when it produced 92 spikes. It was removed to the flower-house, and managed, after the decay of the flowers, as last time, and when rested, placed in a mild bottom-heat. The only different treatment observed this time was to feed the plant with clear weak manure water, which was rendered necessary through the pot having become full of roots, and the soil somewhat exhausted; and as a matter of course the lights were not removed when the weather became so cool as to render this unnecessary. In September the plant produced 156 heads of bloom, in which state it was exhibited."

CULTIVATION OF THE ABRONIA UMBELLATA.

BY MR. JOHN BURLEY, ACACIA NURSERY, ST. JOHN'S WOOD.

THIS pretty, free-blooming, trailing perennial plant derives its name from *ABROS*, *delicate*. It is said by some, that all the kinds are outdoor perennial plants; but I purpose now only to treat upon one of the species, and *that*, in my opinion, should, from its tenderness, be classed as a *greenhouse* plant. *A. umbellata* is the species I refer to; it is a beautiful trailing plant, and was introduced into this country in 1823, from California, and the colour of the flower is a delicate violet-rose. It blooms in umbellate heads, very similar in form and size to those of a *Verbena*. The leaves are thick, and of a light green. The flower stalks are long, but of sufficient substance firmly to support the truss of bloom. Nothing can have a neater effect than this plant during the summer, when planted out in a southern or south-west aspect, in a border of light rich soil; it grows and blooms in profusion all the summer and autumn. It will be found, too, to have an equal handsome effect on rock-work; the shoots trailing and blooming as they advance, makes the best possible trailing plant for the summer that we possess. With all its beauty, however, it is apt to go off, and die in one night, without any previous visible cause for its so doing; but the cause, no doubt, is from its not receiving sufficient moisture. When planted near the house, against a wall, or on rock-work, the roots are liable to get suddenly dry, and the plant thereby receives a check, from which it never recovers. To prevent this occurrence, great care should be taken to see that it receives sufficient moisture, either when planted out or grown in pots. The soil best suitable for its growth is, a mixture of sand, leaf-mould, yellow mellow-loam, and peat, in equal quantities. Let them be well mixed, and used in a rough unsifted state. When grown in pots, they should be well drained, and be perfectly clean. It is propagated both by cuttings and seeds. The former mode is the one generally resorted to. It should be sown in shallow pans or pots, well drained, the seeds very lightly covered, and placed in

bottom heat, kept tolerably *moist* until the plants come up, when care must be taken to give them but just enough water to keep them *moist*, as they are apt, *if kept very moist*, to damp or rot off. But propagating by cuttings is the surest mode of increasing them. The young shoots strike freely in silver sand, in a well-drained pot, and kept in a moderate bottom heat for a short time. As soon as rooted, they must be potted into 60-sized pots, in light soil, *viz.*, *leaf-mould and sand*. If the plant be so treated when young, it will be found to start off freely in growth, and will soon make a fine plant; and when it requires repotting, a stronger soil will be necessary, which may be formed by adding loam and peat to the sand and leaf-mould.

REMARKS ON THE RENOVATION OF GRASS LAWNS.

BY THOMAS RUTGER, ESQ.

IF it might not be thought arrogant, I would offer as an appendage to the excellent article of Mr. Mackenzie (see page 60 of the last Number of the *CABINET*), on the "Renovation of Grass Lawns," &c., that I have proved soot to be an excellent article for *invigorating* the grass on impoverished lawns, at the same time *weakening the moss* growing thereon. The mode of applying it is merely by hand-sowing, as adopted for wheat or other grain, and to be sown on the appearance of a coming shower. If the sowing be repeated once or twice after mowing, it will facilitate the growth of the grass, so as for it very soon to overpower the moss.

OBSERVATIONS ON WINTER DECORATION OF THE FLOWER-GARDEN WITH EVERGREEN SHRUBS.

BY THOMAS RUTGER ESQ.

I can fully agree with your contributor, "Kew's" observation on the admirable appearance of a flower-garden being ornamented in winter with evergreen shrubs.—(See last Number of the *Cabinet*, p. 72.) If any of your correspondents will turn to vol. xxi., p. 64 of the *Cabinet*, the flower-garden of which the design is there given is now furnished with dwarf evergreens with the most happy effect. Some taste is necessary in so disposing of the plants as to give to the whole the best effect, namely, by the admixture of the different varieties of variegated plants in regard to the *varied tints* of colouring which they possess, and which should be liberally interspersed among the different tints of green, which should also be regarded with respect to their being properly placed, so as to give as much variety as possible in each of the compartments in the garden.

It would be a great advantage to have a succession of dwarf evergreens in pots, so that their removal might take place at any time without being injured, and if replunged in any convenient place, they

might serve for a second, or even for a third year, for the purpose of furnishing the flower-garden in winter, after which they might be turned out of their pots, and planted in the shrubbery.

MANAGEMENT OF CHINESE PRIMROSES, (*Primula Sinensis*.)

BY MR. THOMAS SHORT, GARDENER, ASHTON HOUSE, YORKSHIRE.

THESE charming flowering plants rank amongst the most gay and ornamental of our *winter* and *spring* productions. None can excel them as lovely adorners of the greenhouse and dwelling-room windows during these periods of the year. By the following method of treatment, I have grown them with astonishing success, and can with much confidence recommend its adoption to the readers hereof, and the present period is the time to begin by sowing seeds, &c. I sow the seeds in March, in light loam and peat, equal portions, with a fourth part of sharp sand in shallow seed-pans, and place them in a cucumber or melon frame at work. As soon as they have well braided, I place them in a frame where plenty of air can be admitted, or on a shelf on the peach-house, as they are apt to damp off if kept in a very warm close frame before the plants get strong. When they have got a rough leaf or two, I prick them out into similar pans with the same sort of mould, at about an inch and a half apart. About the middle of June I give them their final shift for flowering. The compost I then use is, turfy-loam, leaf-mould, and peat in equal parts, with a fourth part of the whole of sharp river-sand. With this I shift into six and eight inch pots. The pots are then placed in the front of a cucumber frame for two weeks, or so, shading them from sun till they have begun to grow freely. I then have them removed to a cold frame, giving a due portion of air day and night, till the evenings get frosty, when the frame is shut up at night, and covered with mats.

About the middle of October they begin to flower, when I have about one-half placed on the shelves of the greenhouse; this gives more room in the frame for those left. About the middle of November, when they are mostly all in flower, I have the remainder placed in the greenhouse. They flower better if kept near the upright glass on the front shelf; also near the glass in a room window. The double varieties are propagated by cuttings, which will strike freely in peat and sand, with a little bottom heat and close shading.

I water the entire stock of plants freely after the final shifting for the season, and once a week with liquid manure, the drainings of the dung-hill. In the gloomy months of winter they should be watered sparingly, as when overdone, they damp off at the surface of the mould. A few pieces of white quartz, or small pieces of free-stone laid round the inner margin of the pot on the surface of the mould, help to prevent damping off, and are a good support for the shoulders of the plants. After the plants have done blooming in doors, they may be planted out pretty deeply in beds, and will flower again in autumn.

TREATMENT OF THE KALOSANTHUS (*Crassulas*).

BY A NORTH BRITON.

THE merits of this highly ornamental and easily cultivated class of plants seem less appreciated than they deserve. Considering the ease with which fine specimens are produced in a very short time, they become invaluable for summer decoration. The best time to propagate is in July and August, when the plants are in flower. For cuttings, select some of the best shoots *without flower*. The strongest of the cuttings may be put singly into sixty-sized pots, previously filled with a compost of equal parts of peat, loam, and leaf-mould, with a good mixture of sharp sand to keep it porous. They should then be set in a pit or frame with a cool bottom, where they can be lightly shaded for an hour or two in the hottest part of the day. They will speedily root in such a place. When this is the case, they must be shifted into pots two or three sizes larger, and be placed out of doors where they can have the full sun, to get the shoots *well ripened*, which is of much importance, and where they can stand till the heavy rains render it necessary to house the plants. The Geranium house is the best to winter them in, as similar treatment with Geraniums suits the Kalosanthums, and to be *coolish* and *dryish* are essentials during winter.

By January the points of any shoots that have a tendency to take the lead should be taken off and the plant tied out, but care must be taken as to the supply of water; only just give sufficient at this period to moisten the soil, so as to keep the plant in a healthy condition. By February they will begin to grow rapidly, and by the latter end of March will require another shift, and to be kept in the house till May; they will then require another shift, and may then be placed out of doors in the full sun, having something bound round the pot to keep the direct rays of the sun from injuring the roots. The chief care they require through the summer is *plenty of water* and *pot room* when necessary; also to get the shoots *well ripened*; and if any shoots show a tendency to flower, they (the flower) should be taken off, as they would tend to weaken the plant if allowed to remain, and in like manner weaken the next year's bloom.

In August, the last shift for the season should be given; the plants must be housed in *good time* as before, and wintered in the same manner as last winter. In the latter end of March following they may be put into their flowering pots, which should be large enough to afford them a moderate shift. By May the flowering shoots should be nicely regulated and tied out, and the plants set out of doors in the full sun, which will bring out the flowers gradually, but the colours will be brighter if kept under glass. When in full flower take them to the conservatory, greenhouse, or sitting-room, where they have a slight shade from sun.

In order to have large, bushy and dwarfish plants, attention must be paid during the *early part* of the year to stop the principal leads, to induce the production of side shoots, and if about half a dozen leaves be taken off the stump, when the lead is taken off, the new shoots will push better from the naked part, than if the leaves remained. In order

to obtain a branching plant from the first, cut off one of the naked stumps just described after it has pushed several shoots, (as they usually push as many), and at about three inches below those new shoots cut through, clear under a joint, and insert the stem firmly in, as described for cuttings in the early part of this article; such make nice bushy plants, and with due attention in stopping afterwards, very large specimens may be produced, bearing from thirty to fifty heads of flowers, amply repaying for any attention. I must not close the article without adding, that during the summer season, say from the beginning of May to the middle of August, the plants are much benefited by being syringed (both the under side and upper side of the leaves) early every morning. It preserves them from insects, and greatly promotes the healthy growth of the plants. The best kinds are *K. coccinea superba*, *versicolor*, *vivicans*, and *nitida*.

TREE CARNATION.

BY MR. JAMES SHEPPARD, FOREMAN OF THE GARDENS, LONGLEAT, WARMINSTER, WILTSHIRE.

THIS, like its co-partner, the *show variety*, is becoming very extensively cultivated, and I doubt not but it will become as great a favourite. I know of no plant so valuable to the gardener, for decorative purposes, as this; presenting, independent of its delightful, peculiar fragrance, an almost unsurpassed brilliancy of colour, which we may enjoy the *whole of the year* with comparatively little trouble; consequently it cannot be too largely cultivated, as I feel confident the *haut ton* will gladly appropriate a small space of their drawing-room to form a temporary conservatory, particularly in the dark days of winter, when, in return for their admiring gaze, it is ever ready to greet them with its most inviting delicious fragrance.

Those who intend growing for next winter, should propagate at once, if not already done, selecting cuttings which are in a nice growing state, cutting off horizontally close under the second joint. This mode of propagating the TREE CARNATION is considered by some a very delicate operation; but if the cuttings are judiciously made, scarcely one will fail rooting. Many persons merely trim off the lower leaves, as they would another cutting; hence the cause of failure; the remaining parts, as a matter of course, are doomed to decay; the heel of the cutting becomes contaminated, and the cherished hopes of a plant lost. Whereas by cutting off pretty close to the joint, and carefully peeling the lower leaves off with the thumb and finger, success would have been almost certain. Having the pots previously well drained, place a sprinkling of good friable loam, and cover with about half an inch of sand; slightly damp it, and insert the cuttings, placing a bell-glass over them, gently pressing it in the sand, so as to exclude the air; plunge in a good bottom heat. If no bell-glasses are at hand, keep close until fairly rooted, which will be easily demonstrated by their commencing growth. As soon as rooted, pot singly into 60-sized pots, again giving them the benefit of a little bottom heat to get them estab-

lished, after which let them have plenty of air to keep them stocky. Continue to shift on as they fill their pots with roots, using a good mellow loam, a little decomposed cow dung, and an admixture of silver sand. A common garden frame is all the protection they will require through winter (unless in sharp frost, when they should be covered), and bringing the forwardest, as wanted, into a warmer situation; but if judiciously stopped, they will require little artificial treatment. Those for early flowering should not be stopped later than July; others later in succession.

Those who require them for furnishing tables, &c., in small pots, should get them laid as early in June as circumstances will permit, selecting the strongest layers, and those *nearest* the ground, so that they may be brought to the required position with greater ease. Those otherwise situated may be propagated as cuttings, if stock is short. Let the layers be mostly prepared before pegging down, that they may become somewhat flaccid, otherwise a great many will break off, particularly if in a very luxuriant state. I need scarcely say more on this head, as this is familiar to most persons; we will, therefore, presume them rooted, when they may be taken up carefully, and potted into 4-inch pots: place them in a frame and keep it close for a few days; after which the lights may be taken off. The pots must be plunged, to prevent too rapid evaporation. Assist them frequently with manure-water as they are swelling their buds, for at this time they will be making active demands on the root. Neatly stake them, so as to prevent their being broken, and bringing in the forwardest, at all times, will extend the period of flowering a considerable time longer.

THE PLEASURE-GARDEN OF BLOSSOMING TREES AND SHRUBS.

BY CLERICUS.

(Continued from page 16.)

SOME of the pleasure-gardens of antiquity were created for, and devoted to, the pleasures of the softer sex. Solomon has celebrated those of Jerusalem in song, and the extraordinary gardens of Babylon appear to have been formed by Nebuchadnezzar for his Median queen, who, we are told, could not become reconciled to the flat and naked appearance of the provinces of Babylon; but frequently regretted each rising hill and scattered forest which she had formerly delighted in, with all the charms they had presented to her youthful imagination. The king, to gratify his consort, within the precincts of the city raised terraces and planted woods, in imitation of those that diversified the face of his queen's native country. Thus we are told originated those gardens, which for their singularity and comparative extent, were considered one of the wonders of the world. Their base covered four acres of land, and the height of them was so considerable that they resembled a pyramidal mountain covered by a forest. The upper area, which was about 30 feet square, was about 300 feet distant from the river Euphrates, that washed the base of that stupendous superstructure.

This towering pleasure-garden overlooked the whole city and surrounding country, as far as the eye could reach. Each terrace was covered with earth and planted with trees, so as to form a series of ascending groves: and every platform supported rural seats, fountains, and sumptuous banqueting rooms, on which all the splendour and luxury of eastern magnificence were lavished. And, at the present day, we are, in our own favoured land, attempting to exceed even those ancient gardens by the contents of our Crystal Palace-gardens, and those belonging to royal palaces, as well as some of the establishments belonging to the nobles of our isle. And whilst the public are allowed the privilege to enjoy such extended scenes of beauty, we all may, in a more limited degree, enjoy the pleasures of our own little garden, or window collection of flowers.

MISCELLANEOUS SECTION.

THE FALL OF THE LEAF.—(*Continued from page 64.*)—The beautiful tints of autumnal foliage are not correctly attributed to the action of frost. Neither are they the effect of the maturity, but rather of the old age of the leaf; and they may often be observed as early as August in those trees which are in a declining state of health. While passing by the Salem common during the second week in August, I observed a maple in its full autumnal drapery of crimson. On examining it, I found that the tree had been nearly girdled. The wound had been healed, and left only a narrow strip of bark, about three inches in width to sustain the whole plant. This might have been sufficient for that purpose, during a moist summer: but on account of the drought of the preceding July, it failed to supply the tree with sustenance, and a premature old age of the leaf and its accompanying tints were the consequence. A severe frost at that early date would have produced no such effect. An early frost always injures these tints by searing and embrowning the leaves which are exposed to it. This effect was noticed last autumn (1853) when the leaves that ripened later than usual, on account of long-continued rains in the latter part of summer, were overtaken by two very severe frosts, before they had begun to be tinted. In October, the effects of these frosts were apparent in a brownish tinge on the outer surface of the trees, greatly impairing the lustre of their tints, which were not so brilliant as usual.

The cause of the *superior beauty* of our autumnal hues, compared with those of Europe, is undoubtedly the greater intensity of the sun's rays and the greater proportion of clear and dry weather in America, causing the leaves to arrive sooner to maturity and old age. As these influences do not act in the same way upon European trees when introduced into this country, it would be important to note whether American trees preserve their peculiar habit when transplanted to European soils. There is reason to believe that, while these tints are attributable to the influence of our hot summers and clear skies, the habit was acquired with the origin of the species countless ages back, like the black skin of the negro, and that it is now beyond any such climatal influence. Though it might have owed its origin to this peculiarity of our climate,

the habit is now one of the characteristics of the species. In all cases the leaf becomes tinted only when it has lost a certain portion of its vitality, and just before it is ready to fall from the tree.

The pines are not classed with deciduous trees: yet they shed their leaves in autumn as regularly as the latter. Late in October you may observe the yellow foliage which is ready to fall, surrounding the last year's growth of the branches, and exhibiting a curious intermixture of yellow with the green growth of the last summer. These leaves always turn yellow before they fall: you never find the green leaves of a pine tree, as you do of many other trees, mixed with the other foliage upon the ground. The same fact may be noticed of the oaks.

As late as the second week in November we can seldom find one of our indigenous trees with any green leaves upon it, unless it be a young tree, under the protection of woods. The third period has now commenced, and the fall of the leaf is nearly completed. The oaks, though not entirely stripped of their leafy honours, have lost the beauty of their hues, and bear their heads less proudly among the leafless tenants of the forest. The grass already exhibits a seared and brown appearance, and is becoming tasteless to the flocks. A few asters may still be seen, a golden rod in damp places, an occasional solitary coreopsis in the meadows, or a blue-fringed gentian standing erect among the brown herbage of the fields. But amid the general desolate appearance of nature, the scarlet berries of the *PRINOS GLABER* are conspicuous among the wild shrubbery; and the wych-hazel, clad in a full drapery of yellow blossoms, stands ready with joyful hues to welcome the Indian summer.

The Indian summer, which arrives during this third autumnal period, if it comes at all, is a brief period of warm weather that sometimes greets our climate in November, after the fall of the leaf, and not, as many suppose, in October. It is probably caused by the sudden check given to vegetable perspiration by the fall of the leaves. It is well known that by sprinkling a floor, to cool a room in hot weather, we cause the heat to be carried off with the evaporation of the water. On the same principle the infinite host of trees, whose leaves are constantly evaporating the moisture of the earth, must proportionally cool its surface, and the atmosphere that is in contact with it. Anything that increases evaporation from the earth's surface must cool it in the same manner. Hence we may explain the greater coldness of the air over valleys and wet places on summer evenings; and the fact, often noticed, that a rainy spell in autumn is commonly succeeded by severe frosts. The greater burden of the foliage of our woods remains on the trees and shrubs until the severe frosts in the latter part of October. About this time the whole extent of our forests is often laid bare in the brief space of a week or ten days. Not only does this great extent of surface, thus laid open to the sun, receive from his rays an increased amount of heat, but there is a vast and sudden diminution, at the same time, of that evaporation which is caused by the leaves of plants. These two circumstances unite in producing, when no outward agencies interfere, a great accumulation of heat. The warm spell that follows is the true Indian summer, and may last from five to eight days.

During one of these spells of fine weather, I have sometimes heard the crickets chirping merrily as late as the eighteenth of November.

CONTRASTS IN LANDSCAPE GARDENING, &c.—Contrasts are used in the arts of ornamental gardening, painting, oratory, and poetry, for the purposes of heightening effect. The effects of contrast in landscape scenery have not been passed over in silence by the pastoral poets. Thomson, indeed, describes the monotonous and unvarying scenery of those parts of England where hedgerows prevail in favourable terms; and Dyer, in his view from Grongar Hill, seems to have admired scenery of a similar kind, when he says :

“ How close and small the hedges lie !
What streaks of meadows cross the eye ! ”

But in another part of the same poem it is rendered evident that he was alive to the charms of contrast, for he says :

“ The gloomy pine, the poplar blue,
The yellow beech, the sable yew,
The slender fir that taper grows,
The sturdy oak with broad-spread boughs,
And beyond the purple grove,
Haunt of Phyllis, queen of love,
Gaudy as the op’ning dawn,
Lies a long and level lawn.”

There are here the materials of a beautiful landscape, arranged in an effective manner—more effective than if the trees had been placed in hedgerows at equal distances over the face of the country, with narrow “streaks” of meadow ground filling up the intermediate space, and no striking feature, no expanse either of light or shade, to form a leading and concentrating object. A recent French writer compares the monotony—the want of variety—caused by hedgerows dividing field from field, to the English character, about which he considers there is also something monotonous and unvaried. Whatever degree of aptness there may be in the comparison, it is certain that no landscape painter would hesitate long if asked which of the kinds of scenery he would prefer.

In park scenery, the dotting system, by which trees are scattered here and there over the lawn, is prejudicial to effect: and the ornamental gardener, who knows the value of contrasts, will provide unbroken expanses of grass in some places, to set off the scattered groups of trees in others, while both the grass and the scattered groups will add to the effect of an adjoining dense forest-like mixture of trees and shrubs. Ornamental planters are now generally aware of the fine effect that may be produced by planting certain kinds of trees in masses, instead of mixing them in a manner which becomes monotonous through excess of variety, and which meets with no countenance in natural forests, since in them trees grow in masses of one kind, from the adaptation of the different kinds of trees to different soils and climates. In the flower-garden on gravel, contrast, in as far as the design of the beds is concerned, is produced by placing large and small alternately or in groups. In the flower-garden on grass, the same effect is aimed at by clustering the beds near the walks, and leaving a

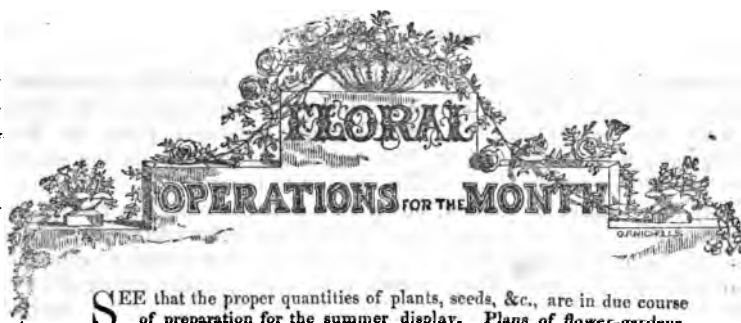
breadth of grass unbroken by a single bed, or even by a solitary standard rose. In planting the flower-garden, contrast is produced in two main ways, the one botanical and the other dependent on the effect of colour. The first consists in planting shrubs and flowers in separate beds, and thus keeping ligneous plants entirely distinct from those of a herbaceous nature. The second way has been fashionable for some years. On its first introduction, the lovers of the promiscuous mode of planting defended that mode on the ground that the beauties of a flower should be judged of by inspecting that flower individually, and not in relation to others. Such objections, however, were soon overcome, and the plan of planting beds with flowers of one kind, and of thus producing contrast by separate masses of colour, so arranged as that two adjacent colours should be entirely distinct in their nature, soon found many advocates and practisers. Perhaps, however, its recent wide prevalence may have been partly the result of a desire on the part of flower cultivators to be "fashionable;" and if this has been the case, the system must be regarded, to a certain extent, as lacking in permanence, for experience testifies that there is no stability in the laws of fashion. It is of importance, therefore, that there should be a searching after first principles in this as in other matters. A labyrinthine maze of beauty may be formed by an indiscriminate mixture of flowers and shrubs, beds, gravel, and grass; but no high degree of art would be exhibited in such a scene. A flower-garden in the massing system is highly artistical, while at the same time it receives countenance from nature; for who has not admired the effect of a bank of cowslips, a mountain side covered with heather, a grassy glade enlivened by a group of the early orchis, a brae side yellow with the blossoms of the broom, or an expanse of moorland adorned by the whin? Everywhere around us the beauties of Nature are heightened by contrast; and it would therefore be an insufficient reason for giving up the system of planting flowers in masses because it had become unfashionable. There will be no permanency in the art of ornamental gardening while fashion is allowed to hold sway within the bounds of the garden or park.—*North British Journal of Horticulture.*

VINE MILDEW; ITS PREVENTION AND CURE.—Again and again has sulphur been recommended for destroying mildew on Vines, and I believe there are no two opinions with respect to its efficacy when properly applied and in time; notwithstanding this, however, I have this season witnessed a splendid crop of Grapes entirely destroyed by mildew, almost to a bunch. I therefore naturally asked why sulphur had not been applied; and the answer was that every bunch had been dusted over and over again with it, as well as syringed with sulphur-water, but without the slightest benefit. It had not, however, been applied in time, nor in the proper way; for although dusting over the berries immediately the disease is perceived would certainly stop its progress, yet, used in this way, it must be admitted to have a very slovenly appearance, as well as more or less to taste the Grapes. Now, as sulphur will destroy the mildew after it has attacked the Vine, why not apply it as a preventive, which surely at all times is better than a cure? I would not recommend dusting the bunches or syringing the

leaves with sulphur, or anything that has an unsightly appearance; but the method I would advise is simply the one practised by myself with the best results, viz., washing my hot-water pipes or flues regularly over every fortnight with sulphur during the forcing season, when the pipes or flues are sufficiently hot to evaporate it. This is not only a preventive of mildew, but a sure check to our great enemy, the red spider; and, from some years' experience, I am certain that if the above be properly attended to, no one will have any reason to complain of mildew. In proof of the success of the above, in the spring of 1852 I visited a gentleman's garden, a few miles from London, where he had lost his crop for two successive years, and he had every appearance of doing the same again. Sulphur had been applied to the bunches, but the mildew had spread over the foliage, and even the young wood was attacked. In course of conversation with the gentleman and his gardener, I told them that I thought it was yet possible to destroy it, provided they would clear the house of the plants. This was done, the fire was lighted, and the flue made hot; sulphur was then mixed up in a pail and applied to the flues by means of a brush. The application was repeated twice a day for three successive days, and by the fourth day the disease had altogether disappeared, the berries that had been very badly attacked were cut out, and the remainder ripened and did well, so that, by the aid of sulphur applied to flues sufficiently hot to evaporate it, a good crop was secured. I never remember seeing any houses of Grapes so badly affected with mildew as the one I have just mentioned. With respect to my own late Vineries, I have fires lighted occasionally, with a view to evaporate sulphur by way of prevention in the manner I have already mentioned.—*E. Bennett, Perdiswell Hall, near Worcester.*—(*Gardeners' Chronicle.*)

The same kind of attention to flowering plants in stoves or green-houses, liable to the attacks of red spider or mildew, will be equally successful, from which consideration we introduce an article on the Vine into our pages.—EDITOR.

COTONEASTERS.—I have the charge of a range of six plant-houses, which extend one hundred yards. In front there is a half-circle flower-garden, of the same length across its base, and which is inclosed by an excellent yew-hedge six feet high, backed with a shrubbery. A border, eight feet wide, being inside the hedge, and a six-feet wide gravel walk next. I have the border occupied with a row each of Hollyhocks and Dahlias, in front of which is one of Fuchsias, and the row nearest the walk is composed of suitable-sized showy annuals. Instead of a box edging, I have one of trained *Cotoneaster microphylla*, nine inches high and about five broad. Its neat evergreen foliage is pretty; its profusion of white flowers are showy, but its being clothed nearly all the year with its bright red berries is beyond description. I have six circular beds for *tall plants* among the other beds of the garden; these six have an edging of Cotoneasters, *microphylla*, *buxifolia*, and the *scarlet-fruited*. Nothing can be neater or more handsome. I had two strong wires tied (with wire) to upright thick pieces of wire-rod (but wood will do), to which the plants are trained. Cotoneasters, too, are handsome as standards, or trained up as pillar roses are. Some fine specimens ornament our shrubbery-beds and borders.—(*A Nobleman's Gardener.*)



SEE that the proper quantities of plants, seeds, &c., are in due course of preparation for the summer display. Plans of flower-gardens, &c., should be sketched on paper, and the appropriate regulations for future arrangement and plans required be put down; this attention is of much assistance.

IN THE FLOWER GARDEN.

Last month was the best time for grafting shrubs, as Thorns, Limes, &c., but late-growing kinds may still be done, as Rhododendrons, &c.

ANNUALS, hardy—such as *Clarkia*, *Nemophila*, *Larkspur*, &c., may still be sown in the open bed. Seeds of *Biennials*, too, should now be sown in beds—such as *Hollyhocks*, *Sweet Williams*, *Scabious*, *Canterbury Bells*, &c. Also seeds of *Perennials*, as *Phloxes*, *Campanulas*, &c. Finish planting out *Biennials* and *Perennials*, and dividing large patches of border plants. *Hollyhocks* must be put in immediately; water them as soon as planted. Newly-budded trees, that is those budded last season, should be looked over, and if any portion of the stock be pushing shoots, they must be rubbed off, so that the entire strength should go to the new shoot engrafted.

AURICULAS AND POLYANTHUSES.—Give air freely on all suitable occasions, to prevent the flower-stems being drawn up weakly. The blossoms will soon be opening; no water must be allowed to fall upon them, and they must be shaded from hot sun.

PINKS.—If beds of them are required, make them immediately. A loamy soil, made of turfs a few inches thick, and well rotted, with an equal portion of old decayed cow-dung, is admirably adapted for their growth. It should be nine inches deep, and have a good drainage below. The plants must be removed with as much of the ball of soil as possible, and be planted six inches apart. High raised beds are not beneficial, except in low, wet situations. Autumn planted beds should be top-dressed with a little rich soil, and the plants be made firm in their places; a few small sticks stuck around amongst the shoots will prevent twisting off.

RANUNCULUSES AND ANEMONES.—When the plants are risen an inch or two high, have the soil pressed closely around them with the hands, stopping up any holes made by worms, &c. A top-dressing, too, of rich compost, free from wire-worm, is very beneficial. Often stir up the soil between the rows. Showers of rain are very beneficial for their growth; if none fall, water with soft water in the morning; well-water is injurious. Weak manure-water occasionally poured between the plants contributes to vigour.

TULIPS.—Stir the surface of the bed an inch deep. Protect from hail, frost, and strong wind. Keep the soil firm around the stem, and mind that water does not lodge in the heart of the plant, where the infant flower is, or it will be damaged; gently open the leaves to admit the water to drain off.

HYACINTHS should be protected from frost, sun, and wind; secure by tying to proper supports. Stir up the surface soil.

PANSIES in beds must have the soil pressed around the plants, and a top-dressing of rich soil an inch or two thick will be beneficial. New beds of them should also be planted. A few sticks among the shoots prevent them being twisted.

CHRYSANTHEMUMS.—Strike cuttings, or pot off rooted suckers.

ROSES.—Now plant out the tender China and Tea, or Bourbons, &c.

IN THE FORCING FRAME.

Balsams, *Cockscombs*, *Globe Amaranthuses*, &c., that require potting off, or repotting, should be duly attended to; also *Thunbergias*, *Browallias*, *Lobelias*, *Brachycomas*, &c. Seedling *Fuchsias*, *Verbenas*, *Petunias*, &c., should be potted off singly. *Dahlias*, too, should be placed so as not to be drawn up weakly. *Achimenes* must be potted off singly. (See articles on Culture in previous Numbers.) Tender Annuals, as *Stocks*, *Zinnias*, &c.,

should be placed in a cool frame or pit, to prevent them being drawn up weakly. Where it is practicable to pick out, such as Stocks, Asters, &c., upon beds, and protect with frames, it should be done; it gives a robust growth to them. Cuttings of most greenhouse plants may now be put out. Young plants of Fuchsias, now procured, if six inches high, will make fine ones for shows in summer. Repot Achimenes, Gloxinias, &c.

IN THE GREENHOUSE.

Admit all the air possible. Repot Lobelias, Tigridias, Geraniums, Verbenas, and other similar plants for beds. All other kinds of plants requiring repotting should now be done. Such as are straggling, &c., should be cut in, to render them bushy. *Pelargoniums* will require particular attention in tying up, watering, and fumigating (if green fly be perceived); occasionally give a little manure water. (See articles on Culture in previous Volume.) Camellias, when done blooming, examine the roots, and, if necessary, repot (see articles upon, for soil, &c.); then place them in a warm part of the greenhouse or forcing-house, giving due attention to watering, &c., till the wood is firm and flower-buds are set; they may then be removed to a cool pit, so as to be gradually hardened by more air, &c. Japan Lilies flourish best in peat soil and sand, Cinerarias require particular attention: pot or repot young seedlings, and fumigate if green fly appear.

A careful inspection of the greenhouse plants should be made, to see which require repotting, and do it at once, not waiting till some general performance. Such Azaleas as have done blooming must directly be repotted, and their growth afresh be gently promoted in a higher temperature for a short time.

ERICAS.—Any requiring repotting should be done directly; avoid too large pots with the less vigorous growers, but free growers will require room to extend in proportion. Give air freely, but avoid draughts, especially from east and north. Calceolarias require repotting to have a vigorous bloom.

BRIEF REMARKS.

COLLODION.—In your last month's Magazine you mention the application of Collodion in stopping the bleeding of Vines. I beg to state that I have used it most effectually for that purpose, on our late pruned Vines here since 1852, and I am at present trying what effect it will have in curing the canker of fruit trees. My attention was called to it by Dr. Dalziel, of Penpont, who has used it for years before the date just mentioned, when pruning his fruit trees. Dr. Dalziel prunes his wall trees at any time that is most convenient, and immediately applies collodion to the wounds. His trees are in good health, and annually bear fine crops of fruit. He was also among the first (if not the first) in this part of the country, who employed collodion in his own profession.—JAMES M'INTOSH, Drumlanrig Gardens.

(By mistake, we stated the process in reference to striking cuttings being tried by Mr. Low, of Clapton, it should have been E. J. Lowe, Esq., of Nottingham.—EDITOR.)

HOITZIA COCCINEA.—I regret that I cannot give you a correct statement respecting the management of the *Hoitzia*, from which I sent you a specimen, as I have only been in my present situation about six weeks. Six plants of it were growing in the stove here when I came—three of them were old ones which had been cut back; the best had at least thirty spikes of bloom on it, all quite as good as the one sent. The plants were at least three and a half feet high; they had been grown in 8-inch pots, in a mixture of loam, peat charcoal, and red-pit sand. The plant from which the flowering specimen sent was cut had only three spikes on it; it had been grown in a 3-inch pot, and was about eighteen inches high. I think, from the habit of the plant, that it might be very much improved by being stopped once or twice in the early part of its growth, which had not been done in this case. They are now all cut down, and are breaking at almost every eye. J. A. F.—*Gardener's Chronicle*.

(It is a very pretty and ornamental flowering plant—merits a place in every stove.—EDITOR.)

FOCHSIA SERRATIFOLIA, and the varieties *Floribunda* and *Alba*, are very valuable winter blooming plants, being highly ornamental for the greenhouse or sitting-room from October to the end of March. When the plants have done blooming, cut back the shoots,

shorten them, and insert the cuttings in sand, place in bottom peat. They soon strike root, pot off into a rich loam well drained, and encourage their quick growth. In July turn the plants out of pots into a warm situated border, soil being tolerably dry, by the middle of October the young flower will be visible, then take them up entire, and repot into a rich compost well drained, placing them in a close frame or pit for a week or two, then remove them to bloom in the green-house or sitting-room, and they will be highly ornamental from the beginning of November to March. When these have done blooming, cut in as before stated, and turn the plants into the open ground, repotting them in October. These old plants bloom more profusely than the young ones. Every attention is most amply repaid.

JASMINUM NUDIFLORUM (Lucy).—This very beautiful yellow-flowered plant is a most valuable acquisition; it blooms in the open garden through autumn and winter, grown in a warm sheltered situation. It does well, too, trained to a wall or trellis. It is valuable also for in-door ornament through the above-named seasons, either in greenhouses, sitting-rooms, &c. It blooms in profusion, and makes a charming bush. It is sold at a shilling each.

EXTERMINATING ANTS.—I have a grass lawn in front of my house, the soil is a sandy loam upon a gravelly substratum. For the last four years the Ants have formed themselves into colonies, and in spite of all my exertions to exterminate them they not only abound, but are numerously increasing. What course can I pursue to get rid of these enemies, without destroying the grass? An early reply will oblige a country Clergyman.

(Give it a good soaking with *diluted gas-tar*. The liquid must be tried in a weak state first, if that does not effect the object, give a stronger solution. It will not injure the grass, unless the gas-tar was in its *almost* pure character. The Ants will soon quit the ground. If they have formed themselves into large companies, take off the turf at the place, loosen the top of the soil and pour a soaking of *strong gas-water*, and in a fortnight relay the turf.—EDITOR.)

SERICOGRAPHUS GHIESBREGHTIANA.—Early last spring I procured a rare bushy plant, and it grew vigorously till the beginning of June. I then stopped all the leads, repotted the plant, and it produced a number of lateral shoots. I retained all, and kept the plants in the greenhouse (a light one) till the end of September, I then put it into the *stove* and by the close of November it began to bloom, and at Christmas the plant had fifty-eight fine spikes of brilliant scarlet (*Justicia* like) tube-shaped flowers, it has continued in great beauty up till now, in my *warm greenhouse* (March 15th). It is one of the most gay and useful winter blooming plants we have in this country. By arrangement in potting, stopping shoots, &c., at sundry times, I am informed plants in bloom may be secured all the year. It is a very free growing plant, makes a good sized bushy one by attention to stopping. I grow it vigorously in equal parts of good loam, turfy sandy peat, and very old decayed dung, with a liberal sprinkling of white sand. During its time of growth and blooming it requires a good supply of soft water, and occasionally manure water. After blooming, I am told, it requires a few weeks rest, and only water enough to keep the soil barely moist, then cut back, repot, and encourage its growth, also at the proper time introduce it to the warmest part of the greenhouse, or into a stove, and it soon becomes one of the gayest ornaments. It is now a good time to obtain a plant for next autumn and winter's bloom.—CLERICUS.

CULTIVATION OF THE AMARYLLIS FAMILY.—*Amaryllis Belladonna*; *A. advena*; *A. pratensis*; *A. crispata*; and *A. curvifolia*, will flourish in the open ground, or in pits or frames, or sheltered by hand-glasses, and in intense frost covered by mats, but when frost is over uncover altogether. *Amaryllis atamasco* is the hardiest of all. The following require a temperate greenhouse: *Amaryllis* (or *Heppastrum*) *acuminata*, *aulica*, *calyptrata*, *equestris*, *fulgida*, *psittacina*, *reticulata*, *ratila*, *solandraeflora*, &c. These are species from the *torrid zone*, and require the following treatment; which is equally applicable to their numerous cross-bred varieties:

The bulbs must, during the time of rest, that is, during the three or four last months of the year, be kept very dry. They may be kept in the pots on a dry shelf in the stove. In January they are placed near the light, and where they may be free from drip. By and by, their scapes and leaves will commence to grow, when they must be slightly watered, gradually increasing the quantity. They will flower and ripen seed under this treatment, especially if the process of artificial fecundation has been carefully attended to, whether by means of their own pollen, or with that of some other species or variety. Success in the

maturation of the seed depends on the following precautions:—Avoid changing the pot from its place; maintain the temperature at from 10° to 12° Reaumur [55° to 60° Fahrenheit], at the least, and never allow it to get below 8° Reaumur [50° Fahrenheit]; water moderately and always when necessary. The production of the seed never affects the health of the bulb, if these directions are carefully followed.

As for the plants which have not flowered, and those whose flowers have not borne fruit, it is advisable to place them in the month of May in a close frame, the lights of which should be opened by the middle of June, if at that time they may be watered by genial showers. The lights must then be kept off, except in the case of cold or rain. This treatment is only applicable to the healthy bulbs, and not to those that are weak or unpromising. These last must be preserved under glass all the summer, and shaded towards the middle of the day. Unhealthy plants are liable to be attacked by the coccus; and in order to free them from these insects which lodge between the scales, the bulb should be brushed with a soft brush, having a pointed handle, which may be used between the scales, as occasion may require, by which means the insects are dislodged. This operation repeated from time to time, is the best and safest mode of keeping the bulbs clear of the insects.

It is advisable to arrange the bulbs according to their state of advancement. Those which have attained the same uniform growth require the same treatment. On one side are placed those which are weak and not disposed to grow; on another those which are growing slowly, and must be excited; and so on. The most favourable time to repot the plants is when they attain to their strongest growth. This operation must be performed with the following precautions:—Take care not to break the ball, but take off about two inches of the surface soil, carefully clear and adjust the principal roots, and place a layer of new soil in the bottom of the pot. This soil should be composed of equal portions of loam and leaf mould, well mixed together; then place the bulb on the top, filling up the sides carefully with more soil, and press the whole gently down. A copious application of water should then be given to consolidate the soil and refresh the bulbs. After a slight syringing, place the plants in a frame which must be kept quite close for a few days, until a gentle shower falls, when the lights may be raised.

All the healthy plants must be treated in this way until the middle of August, when, if the weather is cold and cloudy, the lights must be kept on, and neither water nor shade applied to the plants. By this treatment they will rapidly attain maturation, and the leaves will become dry. At the latter stage the bulbs should be removed from the frames, and placed in the pots on the shelves of the stove.

Amaryllis vittata thrives better in a lower temperature.—(L. VAN HOUTTE.)

PENDENT OR WEEPING TREES.—In all kinds of scenery connected with the garden or field, few objects are more pleasing and striking than handsome weeping trees. Whether their branches are seen to kiss the lake or murmuring brook, or droop in mourning mien over the lonely tomb, their gracefulness and beauty are readily felt and acknowledged. In the extended landscape of mountain, stream, and plain, or even on the lawn of more circumscribed limits, the general effect of weeping trees, when tastefully distributed, is highly picturesque and ornamental. Much skill and taste may be expended in arranging and grouping trees of upright habit, but no other objects so effectually impart an air of completeness or *finis* as the gracefully pendent boughs of the weeping varieties, such as the Willow, the Ash, the Elm, and the Birch.

But beautiful and desirable as weeping trees undoubtedly are, no experiment to increase the number of varieties has as yet been successful. The vulgar notion that the grafts of upright growing kinds assume the pendent habit by merely being inserted in a downward position has long been favourably entertained among the inexperienced in horticultural affairs. But such a notion is, of course, founded in extreme error, since nothing can be more at variance with all known facts bearing on vegetable physiology, as well as skilful practice. The fact is, in this matter, the horticulturist has no resource. Among the innumerable expedients incidental to his profession, no one he can employ, no scheme he can devise, has yet enabled him to surmount this difficulty. Amidst the profundity of learning and the assiduity of research, it must still be admitted, that the origin or production of weeping trees is regulated and determined entirely by the ordinary laws of chance. To the physiologist nothing is more inexplicable; and, perhaps, nothing among the "vital phenomena" of vegetation has been less studied.

And yet, notwithstanding the odds against which we have to contend, it is gratifying to find that the number of varieties of weeping trees has been considerably increased within the last few years, and that the character of those which have been introduced to cultiva-

tion is of no trivial description. Were the different varieties now known to be compared with each other, it would, perhaps, be found, that the Ash, the Elm, and the Willow had suffered no depreciation by the introduction of others which have been later raised. But, indeed, a weeping tree is so graceful and beautiful, that it must, when well grown, command admiration, whatever may be the genus to which it owes its parentage.

It would be interesting and instructive to investigate the degrees of that perpendicular tendency which constitutes a perfect weeping tree. It is scarcely to be denied that there is a wide distinction between those whose strong shoots turn towards the ground as soon as they are a few inches in length, and such as assume the weeping form simply by the branches being gradually bent down by their own weight at the extremities. Of the former, the Oak, the Holly, the Ash, and the Elm, may be cited as examples, while the Willow, the Birch, and one or two others, represent the latter. Not that I think that the Willow is less a weeping tree than the Oak; but in the one case the greater tenuity and length of the branches are more likely to be favourable to the drooping form than their robust strength in the other. The general effect is the same; the cause or process by which it takes place appears to be different. In support of this view it may be observed, that there are many trees not classed among those having a weeping habit, which, owing to the tenuity and length of their branches, are capable of being easily trained to assume as pendulous a form as the weeping varieties of the Oak, the Elm, or the Willow. I have seen a tree of the common Thorn (*Crataegus Oxyacantha*), which, having been trained on a single stem seven or eight feet high, and the upper shoots kept short, finally assumed the true weeping form, or, at least, a very close approximation to it. Other varieties of the same beautiful genus—such as *C. Oxyacantha laciniata*, *eriocarpa*, *melanocarpa*, *Azarola*, and *salicifolia*, have all, more or less, a branching, spreading, or sub-pendent habit; and, in many cases, we find their shoots take a positively perpendicular direction. It may be observed, that even shoots of the Funereal Cypress only begin to turn downwards after they have attained a certain length, as if requiring the force of gravitation to give the appearance so much admired. Now, in the case of the Weeping Holly, there is a positive downward tendency of the shoots, as soon as they are a few inches long; while, contrary to the tenuity we find in those of the Willow and Cypress, they are vigorous and thick enough to grow erect for several feet if it were conformable to their habit.

From this view of the subject I am led to infer that some trees assume the weeping form in a great measure, if not entirely, by the weight of their branches, which are too soft and slender to grow upright, while others, from some unknown cause or action of the sap, naturally incline downwards, even though vigorous and strong. I should be glad of the opinion of others on this subject. P. F. KEIR, (*Companion to the Flower Garden.*)

CULTURE OF JAPAN LILIES IN BEDS IN THE OPEN GROUND.—The best time for planting is the latter end of February, or very early in March; but it must be before the bulbs show any signs of growth, so that the season will become in great measure a guide as to the best time for planting. After choosing the best situation for a bed of these lilies, dig out the soil of the intended bed two feet deep. In the bottom of the excavation, put a layer of about six inches in thickness of broken brick rubbish, or any other porous material near at hand; if the situation is damp, increase the quantity to nine or twelve inches; but if dry, use less. This done, go to the compost-yard, and mix up the following ingredients:—Peat soil—that which you find with plenty of fern-root in it is the best, as Lilliums are particularly partial to such soil—two-thirds; good fibrous loam, one-sixth; and leaf-soil, one-sixth. Chop the peat and loam up very roughly, using the roughest portion for the bottom, and the finer for the top of the bed. When it is filled up to within three inches of the top, arrange the bulbs over the bed in the following manner:—Place all the strongest bulbs of *L. l. speciosum*, and *L. l. punctatum*, to form a centre row (supposing the bed to be an elongated one), as they grow the tallest. If the bulbs should have two buds or eyes, place them so that the two stems produced will range in the order of the rows, and not crosswise on the bed; they should be about a foot asunder. If there are any bulbs strong and single-eyed, place them in the centre of the middle row; or if a roundish bed, they should form a central group, as they usually grow taller still. The rows of plants should be nine inches asunder. Next select the strongest single-eyed bulbs of *L. l. album*, and place a row of these on each side of the middle row. If you have a sufficient quantity of flowering bulbs of the two first-named sorts, make a second line of them outside the white, mixing them as you place them; these two varieties grow to about the same height, and the bulbs placed in this third row not being so strong as those placed in the centre, will not grow so tall. On the outside place another line of the second-size flowering bulbs of *L. l. album*, which will then form the edging. It is

important to bear in mind that the very strongest bulbs of *alum* must be planted in the second row (the first from the centre), or the other varieties in the next row outwards would grow above them, and give the bed an awkward appearance. When the bulbs are thus ranged satisfactorily over the space put about half-a-pint of white sand about each bulb; this tends to keep them healthy, and makes clearer and sounder bulbs for the next year. Then fill up with about three inches of the finer parts of the soil, not pressing it down. By the end of April, if the season has been favourable, you will find whorls of roots near the surface of the soil. When this is found to be the case, they will require surface dressing with fine soil of the same kind as that used in forming the bed; a layer of three to four inches in thickness at this period will assist them greatly. To allow of this addition to the soil, it will be almost necessary to have some neat kind of edging-boards, similar to those used for tulip beds. As the plants advance in growth, let them be tied up carefully.—*AMICUS*.

HIMALAYAN JOURNALS, BY DR. J. D. HOOKER.—"The top of Sinchul is a favourite excursion from Dorjiling, being very easy of access, and the path abounding in rare and beautiful plants, and passing through magnificent forests of Oak, Magnolia, and Rhododendron: while the summit, besides embracing this splendid view of the snowy range over the Dorjiling spur in the foreground, commands also the plains of India, with the courses of the Teesta, Mahanuddee, Balasun, and Mechi rivers. In the months of April and May, when the Magnolias and Rhododendrons are in blossom, the gorgeous vegetation is, in some respects, not to be surpassed by anything in the tropics; but the effect is much marred by the prevailing gloom of the weather. The white-flowered Magnolia (*M. excelsa*. Wall) forms a predominant tree at 7,000 to 8,000 feet; and in 1848 it blossomed so profusely that the forests on the broad flanks of Sinchul, and other mountains of that elevation, appeared as if sprinkled with snow. The purple-flowered kind, again (*M. Campbellii*), hardly occurs below 8,000 feet, and forms an immense but very ugly, black-barked, sparingly-branched tree, leafless in winter, and also during the flowering season, when it puts forth from the ends of its branches great rose-purple cup-shaped flowers, whose fleshy petals strew the ground. On its branches, and on those of Oaks and Laurels, Rhododendron *Dalhousiae* grows epiphytically, a slender shrub, bearing from three to six white lemon-scented bells, $4\frac{1}{2}$ inches long and as many broad, at the end of each branch. In the same woods the scarlet Rhododendron (*R. arboreum*), is very scarce, and is outvied by the great *R. argenteum*, which grows as a tree, 40 feet high, with magnificent leaves, 12 to 15 inches long, deep green, wrinkled above and silvery below, while the flowers are as large as those of *R. Dalhousiae*, and grow more in a cluster. I know nothing of the kind that exceeds in beauty the flowering branch of *R. argenteum*, with its wide-spreading foliage and glorious mass of flowers. Oaks, Laurels, Maples, Birch, Chestnut, Hydrangea, a species of Fig (which is found on the very summit), and three Chinese and Japanese genera, are the principal features of the forest; the common bushes being *Aucuba*, *Skimmia*, and the curious *Helwingia*, which bears little clusters of flowers on the centre of the leaf, like Butcher's-broom. In spring, immense broad-leaved *Arums* spring up, with green or purple-striped hoods, that end in tail-like threads, 18 inches long, which lie along the ground; and there are various kinds of *Convallaria*, *Paris Begonia*, and other beautiful flowering herbs."

FUCHSIA SERRATIFOLIA.—This greatly merits a place in the most select collection of greenhouse plants, on account of its habit of blooming at mid-winter. Like many other valuable plants, I believe it has been nearly thrown out of cultivation, in consequence of our ignorance as to its true merits. If grown as a summer plant, like the others of its genus, it would be completely useless, producing nothing but a naked stem, with a few leaves at the top; as to flowers, they would be few and far between; but when grown as a winter-blooming plant, it will well repay a little extra trouble, and meet with many admirers on account of its beautiful foliage and magnificent flowers. The way I manage it, is to grow a plant well, and then starve it into blooming. In April I take cuttings, which soon strike in a slight hotbed, and when struck, they are potted into half-pint pots, and returned to the frame, where they continue till they are fairly established, when they are removed to a cold frame, where they remain during the summer, being repotted and encouraged to grow well until they get into eight-inch pots, in which they are to bloom. When the pots begin to be well filled with roots, they will begin to show bloom, and will be in perfection during November and December. This plant is of so easy management, that the amateur possessed of a small greenhouse may cultivate it without any difficulty.—*Midland Florist*.

NO PLACE LIKE HOME.—"Pick out," writes Mr. Wallace, the naturalist, who has just spent four years in collecting specimens on the banks of the Amazon—"Pick out the loveliest spots where the most gorgeous flowers of the tropics expand their glowing petals,

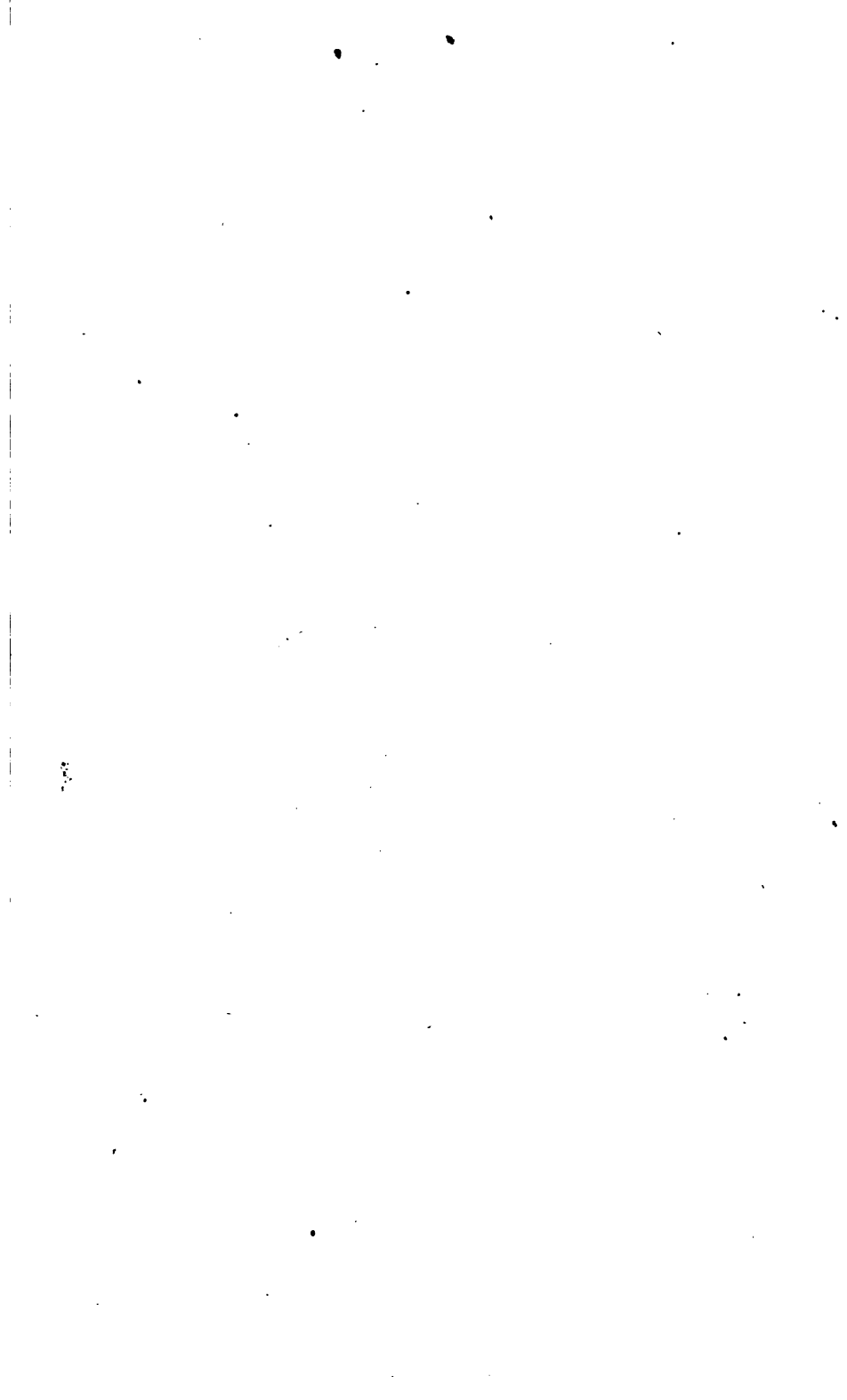
and for every scene of this kind we may find *another at home* of equal beauty, and with an equal amount of brilliant colour. Look at a field of buttercups and daisies—a hill side covered with gorse and broom—a mountain rich with purple heather—or forest glade azure with a carpet of wild hyacinths, and they will bear comparison with any scene the tropics can produce. I have never seen anything more glorious than an old Crab tree in full blossom; and the Horse-chestnut, Lilac, and Laburnum will vie with the choicest tropical trees and shrubs."

HORTICULTURAL SOCIETY MEETING, REGENT-STREET, MARCH 7TH.—Messrs. Veitch exhibited the following plants:—*Boronia Drummondii*. It forms a neat bush, and blooms freely. The flowers are large, of a bright rosy-red. It is a charming plant for the greenhouse. *Acacia Drummondii*. Many of our readers know the handsome *A. grandis*, but the one now shown is much superior. The foliage is exceedingly neat, and dwarf plants, which are easily kept bushy, bloom very freely. The flowers are produced on cylinders, which are an inch or more long, of a beautiful rich yellow colour. It merits a place in every greenhouse. *Sarracenia purpurea*. The flower composed of two round compact heads, or little bundles of purplish-brown leaves, elevated on long slender stems that push up from among the singular pitcher-like appendages. It is stated that in its native country the pitchers are excellent fly-traps, the hairs in the inside pointing downwards, readily admit the flies to descend into it, but prevent the possibility of escaping out. Messrs. Henderson, of Pine-apple-place, sent *Franciscia confertiflora*, its large blue lilac blossoms are very ornamental; it is one of the best. *Conoclinium ianthemum*. The plant was a yard high, and rather more across. It is a good winter blooming plant. The flowers are produced in terminal large heads, something in the way of the *blue Ageratum*. *Bilbergia iridiflora*. A Pine-apple looking plant. Its neat flowers, almost hidden amongst the brilliant scarlet bracts, are strikingly pretty. *Brachysema acuminata*. A pretty plant for coiling round a wire frame; the flowers are of a rich crimson scarlet. *Acacia longifolia*. Its long, very narrow leaves, and the profusion of yellow blossoms render it a pretty plant. Its habit is to grow very tall, but it is readily kept low, and formed into a bush by stopping, in which form it blooms very freely. The following were sent from the garden of the Society:—*Epacris ardentissima*. Flowers a fine crimson red, tube an inch long. *Epacris lineata*. Light pink. *Berberis Darwinii*. A hardy bushy plant that blooms in vast profusion. It had been kept in a pit-frame. The plant does well in the greenhouse, and its mass of rich orange yellow blossoms render it exceedingly ornamental. It makes a fine winter and spring blooming plant for the greenhouse, or dwelling-room window. *Acacia lineata*. A neat plant with pine-like foliage an inch long. It is a profuse bloomer, and its numerous rich, bright yellow, globe-shaped blossoms, are very showy. The plant is readily formed to a neat bush, and ought to be in every greenhouse. *Pullenaea retusa*. A shrub with pea-like yellow flowers. *Dielytra spectabilis*. This very neat flowering plant has an interesting and handsome appearance, and is admired by all who see it.

There should be plants of it in every greenhouse and dwelling-room window. It is easy to grow, can be procured at a low price, and as readily propagated as the Dahlias are. One or more ought to be in every flower-garden, as it is perfectly hardy, only requires to have a bell or hand-glass over the crown of it during winter to guard it from excess of wet. We have seen out-door plants each four feet high, and as much across, in profuse bloom near London.

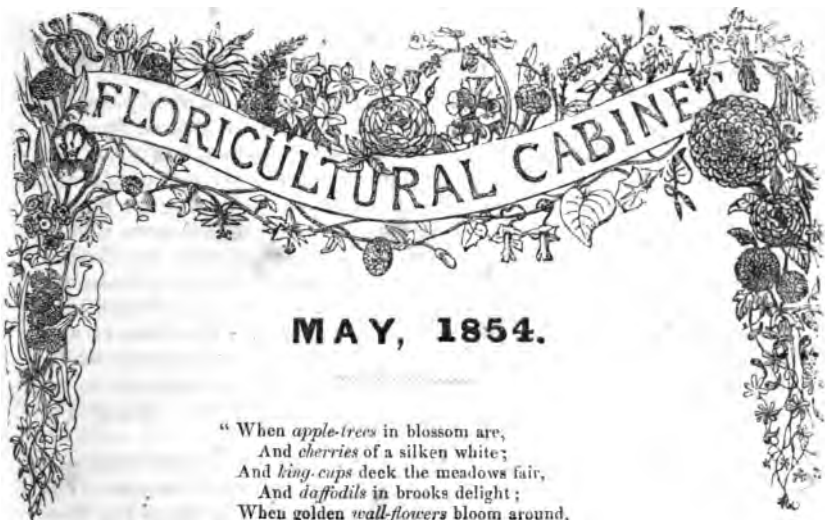
At the meeting on February 21st, the following were exhibited. From Mr. Atkins, of Painawick, near Gloucester, a number of most beautiful seedling *Cyclamens*. That gentleman has for many years been an ardent admirer and cultivator of this pretty, neat, flowering genus, and has been rewarded for his attempts to obtain improved varieties by the lovely ones which appeared on this occasion. One pot of one of his new kinds, named *C. Atkinsonii*, had 254 expanded flowers, of a French white with a rose dye. There had been many gone out of bloom, and others were springing forth. The appearance was a mass of bloom, about a foot across, and each flower standing erect, about five to six inches high, producing a most charming effect.

FANCY PELARGONIUMS.—This handsome class generally bloom early. The first week in April I select the forwardest and place them in gentle warmth; also give liquid manure every third watering, which brings out the blossoms boldly and freely; it also contributes to brighten the colours of the flowers, and they continue much longer in bloom than similar plants do which have not liquid manure. At this time, too, I cut off the ends of the shoots of a portion of the plants to prevent them blooming now, and to induce them to push *fresh shoots*, which, being later, will produce a fine bloom in Autumn, or even up to Christmas. Cuttings, too, now struck, potted, and duly treated afterwards, will form winter blooming stock.—*A Six Years' Manager of a Collection of above 10,000 plants of this class.—London.*





Eriogonum longiflorum.



FLORICULTURAL CABINET

MAY, 1854.

"When *apple-trees* in blossom are,
And *cherries* of a silken white;
And *king-cups* deck the meadows fair,
And *daffodils* in brooks delight;
When golden *wall-flowers* bloom around,
And purple *violets* scent the ground,
And *lilac* 'gins to show her bloom,—
We then may say that May is come."

"God might have made enough, enough
For every want of ours;
For luxury, medicine, and toil,
And yet have made no flowers.

"Our outward life requires them not;
Then wherefore had they birth?
To minister delight to man,
To beautify the earth;

"To comfort man, to whisper hope
Whene'er his faith is dim;
For 'whoso careth for the flowers,
Will care much more for him.'"

ILLUSTRATIONS.

CERATOSTEMA LONGIFLORUM (Synonym, *C. grandiflorum*), *N. O. Vacciniæ*. Section *Ericacæ*.

MR. LOBB discovered this very handsome flowering, evergreen shrub on the Andes Mountains of Peru, at an elevation of 12,000 feet. We saw it in bloom last summer, in the cool greenhouse at Messrs. Veitch's nursery, King's-road, Chelsea. It forms a neat bushy shrub (*now* two feet and a half high, and as much across), and blooms freely. It has been considered a half-hardy plant, but from its appearance, and in its native habitat, growing in such an elevated situation, it will very likely prove hardy in this country, at least as hardy as the *Mitraria coccinea*. It is a valuable acquisition, and merits a place in every floral collection of plants.

NOTES ON NEW OR RARE PLANTS.

GENTIANA FORTUNI.—This handsome species is a native of Northern China, from whence it was sent by Mr. Fortune to Messrs. Standish and Noble, of Bagshot Nursery, where it bloomed last year. It belongs to the same section of *Gentiana* as the *G. septemfida* and *G. Pneumonanthe*, viz., having several erect stems bearing the flowers in terminal glomerate heads. The present new species is more robust, and rises higher than either of the two above named; the flowers too are larger. Each principal stem bears from six to eight blossoms, and an individual flower is two inches long, and the five-divided limb (front of the flower) is an inch and a half across. The limb, as well as inside of the tube, is of an intense deep blue, spotted with white. The outside of the flower is yellowish-green. It is supposed to be quite hardy. It merits a place in every flower-garden. (Figured in *Bot. Mag.*, 4776.)

HEINTZIA TIGRINA. Spotted-flowered. N. O. Gesneriaceæ.—It is a coarsish robust *Besleria*-like plant, a native of the Caraccus. The leaves are large, similar to those of a Gloxinia. The stems rise from two to five feet high. The flowers proceed, singly, from the axils of the leaves, and are nearly erect, *funnel-shaped*; calyx large, of a pale yellow-green, tinged with red; corolla funnel-shaped, an inch and a half long, white, and the *limb* (front of blossom) is an inch across, divided into five lobes, white, beautifully spotted with purple. It bloomed last *winter*, in the stove in the Royal Gardens at Kew. (Figured in *Bot. Mag.*, 4774.)

PITCAIRNIA LONGIFOLIA, N. O. Bromeliaceæ.—This pretty flowering pine-apple like plant was sent by Mr. Nation from Lima, in Peru, to the Royal Gardens at Kew in 1852, and bloomed in the stove in 1853. The plant has a clear stem or trunk, nearly a foot long, and upon its summit the spreading tuft of long leathery leaves (sometimes four feet long) are produced. The flowers are borne in a *panicled raceme*, forty or more blossoms in each. The corolla, of three petals, forms an apparent tube, two inches long, of a bright-red colour. It is a very interesting and pretty flowering plant. (Figured in *Bot. Mag.*, 4775.)

PRUNUS SINENSIS, FLORE ALBO PLENO. This is a *valuable acquisition*, a *PLUM* having blossoms that are *double*, white, and each flower being from one to two inches across, having a long footstalk. It rivals the *Pyrus Japonica*, and in contrast produces a charming effect. Mr. Fortune discovered it in China in 1852, and transmitted it to England. It ought to be in every shrub border.

FUCHSIA SOUVENIR DE LA REINE.—Mr. Coene, of Gendbrugge, exhibited the plant at the *Florale de la Société d'Horticulture de Gand*, in 1853. The tube of the blossom is an inch long, of a bright rosy-purple, and the sepals are white and green. The corolla is of a similar colour to the tube. It blooms freely, and the blossoms have a strong likeness to those of *F. cordata*.

BEGONIA FUCHSIODES ALBA. It is a more vigorous plant than *B.*

fuchsioïdes, and the foliage of a lighter green. The blossoms of the latter do not open fully, but those of *B. f. alba* expand quite flat. They are too of good substance, pure white, with a very striking rich yellow centre, and each flower is an inch across. It is very neat and pretty, well meriting a place in every collection.

MEDINELLA MAGNIFICA. There is a most noble specimen of this superb, large, hot-house plant in bloom at the nursery of Mr. Veitch, King's-road, Chelsea. It has upwards of thirty of its large paniced racemes of singular-formed flowers, which have a very striking appearance. It will, most likely, be shown at the Horticultural Society's Exhibition in May.

RHODODENDRON JASMINIFLORUM. In the greenhouse at the above nursery, we saw a fine bush in bloom. The flowers are borne in somewhat drooping clusters of about twenty in each. They are of a pure waxy-white, the tube-formed blossoms two inches and a half long, with a spreading limb (end of blossom), half an inch across. It is very pretty.

DURANTA BAUHNERA. A bushy shrub, having foliage in form very like that of the *Althæas*; but the leaves are beautifully variegated with green and yellow. It is grown in the stove, and has an ornamental appearance.

GESNERIA DONKALERIA. A robust plant. The leaves are nearly heart-shaped, eight inches across, green, tinged with purple and red. The flowers are produced in terminal heads; and plants about nine inches high bloomed freely. Each blossom is about two inches long, in the form of one of the scarlet-blossomed *Pentstemon*; they are of a rosy-red colour, very neat and pretty.

APHELANDRA ROI LEOPOLD. A stove plant, having very large leaves, almost the size of *Canna indica*, a deep shining green with white veins, having a beautiful netted appearance. It also blooms freely, and the flowers, of a citron-yellow colour, are very pretty. It was originally discovered in the woods of Rio de Janeiro, and is offered for sale by Mr. Van Houtte. It is very ornamental even without flowers.

IMPATIENS JERDONIÆ. Mrs. Jerdon's Balsam. Mr. M'Ivor sent this interesting species from the East Indies to the Royal Gardens at Kew, where it bloomed in the greenhouse. We recently saw a plant of it in bloom in the stove in Mr. Veitch's, and in strong heat the colours are much finer than in the greenhouse. The stems of the plant are jointed, similar to those of *Cacalia articulata*, and at intervals throw out roots. The stems rise from six to ten inches high, fleshy, tinged with purple. The leaves are only upon the upper part of the gouty stems, oval. The flowers are produced at the ends of the shoots, six to eight in each cluster. The flower-stalks are red, each bearing a single blossom. Sepals green; side ones bright yellow; the lower portion of the flower, usually termed the sack or pouch, is, in the stove, a bright red, and, in contrast with the yellow top, has a pretty appearance. It does not appear to be a profuse bloomer.

ÆSCHYNANTHUS MINIATUS. In the stove at Mr. Veitch's nursery,

King's-road, we saw this neat and pretty flowering species. The plant was erect, about a foot high, having several stems, and each terminating in a short spike of flowers. A single blossom is an inch and a half long, cylindrical-tube shaped with the limb (end of blossom), an inch across, and of a rich blood-colour. It is exceedingly neat and handsome.

AZALEA DILECTA. In the greenhouse we saw this very handsome seedling in fine bloom. The flowers are large, form and substance very good. The ground colour is of a salmon-pink, and the upper segments having each a deep purple stain, or blotch. The entire flower has a very clear *white edging*, about a quarter of an inch broad. It is a very handsome variety, well meriting a place in every collection.

FUCHSIAS. We saw a number of standard plants, each having a clear stem from two to four feet high, with uniform heads. These, when in bloom, will have a pretty appearance.

APHELANDRA PORTEANA. Another fine stove plant, the leaves of a rich green with metallic silvery-white veins; very pretty. The fine terminal heads of flowers are of a beautiful orange; both corolla and bracts being alike in colour. Mr. Van Houtte possesses the plants. By judicious cultivation at successive periods, all the fine plants of this genus may be had in bloom at any time of the year; they are valuable for winter bloom.

Showy flowering Plants, now in bloom in the Royal Gardens at Kew.

STOVE. *Gloxinia discolor*, light blue, with a dark purple front, and a broad stripe of white inside the blossom; very neat.

FUGONIA PAPILLOSA. In all respects has the appearance of a Begonia. Grows erect, and the blossoms (in panicles) white, tinged with green; pretty.

ERANTHEMUM ALBIFLORUM. It is a stiff bushy plant. The flowers are produced in spikes, five petalled, of a pure white; pretty. *Cypripedium barbatum*, in fine bloom, very pretty.

GREENHOUSE. *Indigofera gracilis*, a dwarf bush, foliage pinnate, neat. Flowers of a rosy-purple, pea formed, in profusion.

Pultanea polygalifolia. A neat bushy plant. Flowers pea-formed, a bright golden yellow, each half an inch across, in profusion; very handsome.

Pultanea Junipera. A neat plant with heath-like foliage. Flowers deep yellow with a red keel; pretty.

Indigofera Australis. Neat pinnate foliage, flowers a rosy-red, pretty.

Podolobium trilobatum. Neat holly-like foliage, and forms a pretty bush. Flowers, pea-formed, yellow with red keel; very pretty.

Loddigesa oxalidifolia. A neat bush, with oxalis-like foliage. Flowers pea-shaped, flesh coloured, in profusion.

Goodia pubescens. A neat bush with pretty small foliage. Flowers pea-like, half an inch across, bright yellow with a dark eye, in profusion, and very pretty.

Boronia tetrandria. A neat bushy plant, foliage pinnate. Flowers in long spikes, flesh coloured.

B. macrophylla. A neat bush, flowers white, tinged with lilac, in profusion; very pretty.

B. crenulata. Neat bush, small leaves; flowers of a rich rosy red, each half an inch across; pretty.

B. fragrans. A neat bush, flowers a deep pink, each half an inch across.

B. uniflora. A neat bush, foliage pinnate. Flowers a deep pink, in great profusion; very pretty.

Chorozema macrophylla. A neat bush, leaves medium-sized. Flowers rich orange, with a deep red keel that is divided into two spreading parts; very pretty.

Pultænia biloba. A neat bush, with small foliage. Flowers pea-like, half an inch across, a deep yellow with red eye, in vast profusion; very pretty.

Comaculum aurantiacum. The plant is eighteen inches high, neat ash-like leaves. The flowers are in form very similar to those of a large *zinnia* of the richest deep orange colour; very pretty.

Mitraria coccinea. A fine plant; its large, exceedingly handsome scarlet pendant flowers being the admiration of all who see it.

Boronia Molina. A neat bushy plant. Flowers borne in long spikes, each blossom half an inch across, rosy-lilac, with a striking yellow centre of anthers. Very pretty.

Deutzia gracilis. These neat bushy plants, in most profuse bloom, with its large racemes of pure white flowers, render it one of the most charming. It ought to be in every greenhouse or sitting-room window.

Chorozema elegans. A neat bushy plant, which blooms in vast profusion. The flowers are of a rich orange colour, with a light yellow eye, and a rose-coloured keel. It is very handsome.

Begonia miniata. It has the habit of *B. fuchsoides*, but the flowers are of a fine orange colour. It is a handsome stove plant, and ought to be in every one.

Gloxinea macrophylla variegata. The leaves are large, eight inches long by six broad, of a velvety shaded green, with striking white veins; very handsome. The flowers are a light blue, with a white stripe down the inside.

Azalea alba-major. Flower large, fine form, good substance, white, with some of its blossoms having a purple stripe. A profuse bloomer.

Azalea Perryana. Flowers a fine orange-red, produced in vast profusion; very showy.

Azalea siensis. The flowers of a rich yellow; very pretty.

Chorozema Lawrenciana. Foliage holly-like, and the flowers of a copper and yellow, with purple keel; pretty.

REMARKS ON FORCING ROSES.

BY MR. JAMES MAYOR, GARDENER TO WILLIAM WALKER, ESQ., SUMMERFIELD,
BOWDON, ALTRINCHAM, IN CHESHIRE.

As these are such favourites, we feel inclined to offer a few remarks on the winter culture of them, believing that any observations connected with these plants will be acceptable, although we are already aware that much has been said and written upon this subject, and in a way, too, highly creditable to the writers; and though we by no means wish to insinuate that the following method of forcing roses in winter is new, yet the particulars of the same may prove subservient to some of your readers. As there are several points to be considered in Rose-forcing, we will notice them separately; viz., *compost, watering, drainage, temperature, &c.*

First. COMPOST.—Roses, under nearly all circumstances, like a rich soil; but this is not a sufficient elucidation, because soils may possess too nutritive properties; and, again, the nutriment contained in the soil may be of a character not only differing from the requirements of the plant, but extremely pernicious to the health of the same. The kind of soil, or rather compost, which the Rose delights in is decomposed turf, such as has been taken from a pasture field, and allowed to remain perhaps two years in a heap; to this add a little thoroughly decomposed dung,—that from an old hot-bed would perhaps be preferable. The first-mentioned material, however, cannot always be had; therefore we would suggest that anything next to it, of a fibrous nature, provided it be not peat, strongly act as a substitute. It is the practice with some who force Roses in winter, to sift the soil. This we most decidedly condemn, for reasons which will be shown hereafter.

The next point is **WATERING**, to which, with these plants, we cannot give too much attention. Roses in winter are particularly subject to the greatest of pests, *mildew*. Mildew, however, is not always attributable to injudicious applications of water, although too often so; but from a deficiency in the drainage, and a close stagnant atmosphere, we sometimes see the whole three combine, when mildew is, as a matter of course, inevitable. But any of these three is alone sufficient to produce mildew, without any co-operation. When water is required, give it *liberally*, so as to dispense with that bad practice of dribbling, or just wetting, the surface, while the remainder of the ball remains dry.

DRAINAGE is a very important point in the cultivation of all plants, but more particularly so in what is termed pot-culture, or the cultivation of plants in pots. We drain our pots for Roses as follows:—A piece of pot that will just fit the bottom goes first, then a layer of smaller pieces; at the top of these, again, are about three pieces of turf, these being large enough to cover the broken pieces of pots. This will be found sufficient to carry away *quickly* any water that may be administered to the plant. In addition to this, the compost is *very*

open, being, as we should have said before, lumps instead of the dusty material too often made use of.

TEMPERATURE.—Plants of any kind suffer or lose a great amount of their strength and beauty by being subjected suddenly to a high temperature, and at any time if the same is stronger than the nature of the plant requires.

Being provided with the requisite number of plants, the next point for our consideration is the time of starting, and the amount of heat necessary to start or break them. Although the time of introducing them to heat must be determined by the time they are wished to flower, yet suppose we introduce some of them in November, care must be taken to break them *by degrees*, and water be supplied carefully. The temperature of the house to which they are first introduced should, as we recommend, be about 45° to 50°. This will be found sufficient to break them; and if not required early, will be adequate for their further development. As soon as they have formed their flower-buds, clear liquid manure may be given with safety; for at this time the pots will, or should be, full of roots, therefore rendering the application of extra stimulants less dangerous.

When they have done flowering, and the season has advanced as far as the end of April or the beginning of May, we turn them out of doors, giving them water if required, and lay them on their sides, on coal-ashes. The situation should be a sheltered one, and where they will not be exposed to the full power of the sun's rays.

SOME OBSERVATIONS UPON THE SLEEP OF PLANTS,

AND AN ACCOUNT OF THAT FACULTY WHICH LINNÆUS CALLS
VIGILIE FLORUM,

WITH AN ENUMERATION OF ALL THE PLANTS WHICH ARE
SUBJECT TO THAT LAW.

READ BEFORE THE ROYAL SOCIETY, JANUARY 26, 1758.

Communicated by Mr. Richard Pultney.

EXTRACTED BY MR. JAMES SMITH, BELLE VUE VILLA, NEAR LIVERPOOL.

EVERYTHING connected with what are usually denominated *flowering plants* is highly interesting, and, to a careful observer, full of instruction; and perhaps in none is it more so than in the SLEEP OF PLANTS. Recently meeting with the following remarks upon that natural peculiarity, I hasten to forward them for insertion in the May Number of the CABINET, as during that month many of the flowers described therein will be in bloom, and others in the successive months of the season; it will thus afford opportunities to many readers hereof to see the truthfulness of the statements, in the certain and regular process which the various plants display, at the times and periods mentioned. It may also suggest to some observant admirers of plants, to ascertain what other plants than herein described come under their notice,

possessing similar properties, and we may hope to have additional particulars in future Numbers of this Magazine.

Acosta and Prosper Alpinus, who both wrote near the conclusion of the sixteenth century, are, I believe, the first who recorded that nocturnal change in the leaves of plants, which has since been called *somnus*. It is an observation, indeed, as old as Pliny's time, that the leaves of Trefoil assume an erect situation upon the coming of storms. The same is observable of our Wood Sorrel; and Linnæus adds, of almost all plants with *declinated stamina*. In the *Trifolium pratense-album*, or common white-flowered meadow trefoil, it is so obvious, that the common people in Sweden remark it, and prognosticate the coming of tempests and rain from it.

The examples of sleeping plants instanced by Alpinus are but few. That author says that it was common to several Egyptian species, but specifies only the *Acaciæ*, *Abrus*, *Abrus*, *Sesban*, and the Tamarind-tree. Cornutus some time afterwards remarked this property in the *Pseudo-Acacia Americana*. From that time it has remained almost unnoticed till Linnæus, ever attentive to Nature's works, discovered that the same affair was transacted in many other plants; and his observations have furnished us with numerous and obvious examples thereof. Mr. Miller mentions it in the "*Medicago Arborea*," Lin. Sp. pl. 778; and we may add to the list two other common plants not mentioned by Linnæus: these are, the *Phaseolus vulgaris*, common Kidney bean, and the *Trifolium pratense purpureum majus* or Clover grass; in both which this nocturnal change is remarkably displayed. Doubtless the same property exists in numberless other species; and future observation will very probably confirm Dr. Hill's sentiment, that "no plant or tree is wholly unaffected by it."

It is now more than twenty years since Linnæus first attended to this quality in plants. In his "*Flora Lapponica*," when speaking of the *Trifolium pratense album*, as above mentioned, he remarks that the leaves of the *Mimosa*, *Cassia*, *Bauhinia*, *Parkinsonia*, *Guilandina*, and others in affinity with them, were subject to this change in the night-time: and he had then carried his observations so far, as to find that heat and cold were not the cause of this quality: since they were alike influenced by it when placed in stoves, where the temperature of the air was always the same.

The merit of reviewing this subject is therefore due to the illustrious Swede, and the naturalist is greatly indebted to him for so far extending his observations thereon. The revival of the subject has led the way to an explanation of its cause. This Linnæus had left untouched. The honour of this discovery is due to our countryman, Dr. Hill, and his ingenious and elegant explanation of it demands applause. Every acquisition of knowledge in this way should be steadily pursued. The economy of Nature is ever worthy of our regard, and every step gained in the investigation of her principles may lead the way to great, though at present latent usefulness.

The subject of *Somnus plantarum* cannot but be highly entertaining to the lovers of natural knowledge; and such, I apprehend, cannot be

less entertained with that faculty which Linnæus calls *Vigiliæ florum*, of which we shall give a brief account.

Previous to our explanation of this affair, it is proper to observe, that the flowers of most plants after they are once opened, continue so night and day, until they drop off, or die away. Several others, which shut in the night-time, open in the morning, either sooner or later, according to their respective situation in the sun or shade, or as they are influenced by the manifest changes of the atmosphere. There are, however, another class of flowers which make the subject of these observations observe a more constant and uniform law in this particular. These open and shut duly and constantly at certain and determinate hours, exclusive of any manifest changes in the atmosphere; and this with so little variation in point of time, as to render the phenomenon well worth the observation of all whose taste leads them this way.

This faculty in the flowers of plants is not altogether a new discovery; but we are indebted to the same hand for additional observations upon this head likewise. It is so manifest in one of our common English plants, the *Tragopogon luteum*, that our country-people long since called it, "*John go-to bed at noon*." Linnæus's observations have since extended to near fifty species, which are subject to this law. What we find principally upon this subject is in the "*Philosophia Botanica*," p. 273. We will enumerate these plants, and mention the time when the flowers open and shut, that those who have opportunity and inclination may gratify themselves, and probably at the same time extend this branch of botanic knowledge still further.

It is proper to observe, that as these observations were made by Linnæus, in the academical garden at Upsal, whoever repeats them in this country will very probably find that the difference of climate will occasion a variation in point of time; at least this will obtain in some species, as our own observations have taught us; in others, the time has corresponded very exactly with the account he has given us.

Whether this faculty has any connection with the great article of fecundation in the economy of flowers, I cannot determine; in the meantime, it is not improbable. Future and repeated observations and well adapted experiments will tend to illustrate this matter, and it may lead the way to a full explanation of the cause.

1. *Anagallis flore Phœniceæ* (*Anagallis arvensis*).—The male Pimpernel.—The flowers of this plant open about eight o'clock in the morning, and never close till past noon. This plant is common in kitchen gardens and in corn-fields, and flowers in June, and continues in flower three months.

2. *Anagallis cærulea* (Syn., *A. monelli*).—Blue-flowered Pimpernel, with narrow leaves. The flowers of this plant observe nearly the same time in opening and shutting as the foregoing.

3. *Convolvulus peregrinus* (Syn., *C. tri-colour*).—Little blue Convolvulus or Bindweed.—This opens its flowers between the hours of five and six in the morning, and shuts them in the afternoon.

4. *Phalangium parvo flore ramosum*. Branched Spiderwort, with a

small flower.—These open about seven in the morning, and close between the hours of three and four in the afternoon.

5. *Lilium rubrum* (Syn., *Hemerocallis fulvus*).—The Day Lily.—The flowers open about five in the morning, and shut at seven or eight in the evening.

6. *Plantago aquatica minor* (Syn., *Alisma ranunculoides*).—The lesser water Plantain.—During its flowering-time only opens its flowers each day about noon.

7. *Caryophyllus Sylvestris prolifera* (Syn., *Dianthus prolifera*).—Proliferous Pink.—The flowers expand about eight in the morning, and close again about one in the afternoon.

8. *Spergula purpurea* (Syn., *Arenaria rubra*).—Purple Spurrey.—These expand between nine and ten in the morning, and close between two and three in the afternoon. This little plant is common among the corn in sandy soil, and flowers in June.

9. *Portulacca latifolia sativa* (Syn., *Portulacca oleracea*).—Common Purslain.—Opens its flowers about nine or ten in the morning, and closes them again in about an hour's time.

10. *Ficoides Africana* (Syn., *Mesembryanthemum chrystallinum*).—Diamond Ficoides, or Ice plant.—The flowers of this plant open at nine or ten, and close at three or four in the afternoon.

11. *Ficoides Africana barbatum* (Syn., *Mesembryanthemum barbatum*).—The flowers expand at seven or eight in the morning, and close about two in the afternoon.

12. *Ficoides Neapolitana* (Syn., *Mesembryanthemum nodiflorum*).—The flowers of this plant open at ten or eleven in the morning, and close at three in the afternoon.

13. *Mesembryanthemum linguiforme*.—Ficoides, with a tongue-shaped leaf.—These open at seven or eight in the morning, and are closed about three in the afternoon.

14. *Nymphaea Alba*.—White Water Lily.—This plant grows in rivers, ponds, and ditches, and the flowers lie upon the surface of the water. At their time of expansion, which is about seven in the morning, the stalk is erected, and the flower more elevated above the surface. In this situation it continues till about four in the afternoon, when the flower sinks to the surface of the water, and closes again.

15. *Papaver erraticum nudicaule*.—Wild Poppy, with a naked stalk, and a yellow, sweet-smelling flower. It opens at five in the morning, and closes at seven in the evening.

16. *Alyssoides incanum* (Syn., *Alyssum sinuatum*).—Hoary Madwort, with sinuate leaves.—The flowers of this plant expand between the hours of six and eight in the morning, and close at four in the afternoon.

17. *Abutilon repens* (Syn., *Malva Caroliniana*).—Creeping Indian Mallow, with leaves like the Vervain mallow, and a flesh-coloured flower. These open at nine or ten in the morning, and close at one in the afternoon.

18. *Tragopogon luteum* (Syn., *T. pratense*).—Yellow Goat's-beard, or *Go to bed at Noon*.—The latter of these names was given to this

plant long since, on account of this remarkable property. The flowers open in general about three or four o'clock, and close again about nine or ten in the morning. These flowers will perform their *vigillæ*, if set in a phial of water within doors, for several mornings successively; and I have sometimes observed them to be quite closed from their utmost state of expansion in less than a quarter of an hour. It flowers in June.

19. *Tragopogon gramineus* (Syn., *T. hybridum*).—Rose-coloured Goat's-beard.—These open between five and six in the morning, and close about eleven.

20. *Sonchus tingitanus* (Syn., *Scorzonera tingitana*).—African Sow-thistle, with a poppy leaf.—This plant opens its flowers between four and six in the morning, and closes them again in about three hours.

21. *Sonchus repens* (Syn., *S. arvensis*).—Tree Sowthistle.—These flowers expand about six or seven, and close between eleven and twelve in the forenoon. This is common in corn-fields, and flowers in June, July, and August.

22. *Sonchus lævis* (Syn., *S. oleraceus*).—Smooth or upright Sowthistle, or Hare's Lettuce.—These open about five in the morning, and close again at eleven or twelve.

23. *Sonchus cæruleus* (Syn., *S. Alpinus*).—Blue-flowered mountain Sowthistle.—These open about seven, and close about noon.

24. *Sonchus tricubitus* (Syn., *S. palustris*).—The greatest marsh-tree Sowthistle.—It expands its flowers about six or seven, and closes them about two in the afternoon.

25. *Lactuca sativa*.—Garden Lettuce.—Opens its flowers about seven, and closes them about ten in the forenoon.

26. *Dens leonis* (Syn., *Leontodon taraxicum*).—Dandelion.—It expands at five or six, and closes at eight or nine in the forenoon. This flowers early in the spring and again in the autumn.

27. *Dens leonis hirsutus* (Syn., *Leontodon hispidum*).—Rough Dandelion, or Dandelion Hawkweed.—This plant opens its flower about four in the morning, and keeps expanded till three in the afternoon; flowering in May.

28. *Hieracium minus* (Syn., *Leontodon autumnale*).—Hawkweed or Yellow Devil's-bit.—The flowers open about seven, and keep in an expanded state till about three in the afternoon. It flowers in July and August.

29. *Pilosella repens* (Syn., *Hieracium pilosella*).—Common creeping Mouse-ear.—Opens about eight in the morning, and closes about two in the afternoon. Very common on dry pastures, flowering in June and July.

30. *Hieracium murorum*.—Golden Langwort.—The flowers of this expand about six or seven, and close about two in the afternoon, upon old walls; flowering in June and July.

31. *Hieracium angustifolium* (Syn., *H. umbellatum*).—Narrow-leaved bushy Hawkweed.—The flowers of this species expand about six in the morning, and remain open till five in the afternoon.

32. *Hieracium latifolium* (Syn., *H. sabandum*).—Broad-leaved, bushy Hawkweed: These flowers are in their expanded state from

about seven in the morning till about one or two in the afternoon. In woods, flowering in June and July.

33. *Hieracium montanum* (Syn., *H. paludosum*).—Succory-leaved Hawkweed.—The flowers expand about six in the morning, and close about five in the afternoon.

34. *Hieracium luteum glabrum* (Syn., *Crepis tectorum*).—Smooth succory Hawkweed.—The flowers of this plant expand about four in the morning, and close about noon.

35. *Hieracium Alpinum*.—Mountain Hawkweed.—These open about five or six, and close at eleven in the forenoon.

36. *Hieracium dentis-leonis* (Syn., *Crepis rubra*).—Hawkweed of Apulia, with flesh-coloured flower.—The flowers remain in their expanded state from six or seven in the morning, till one or two in the afternoon.

37. *Hieracium ectriodes* (Syn., *Picrissechioides*).—On banks, about hedges, and about the borders of fields, flowering in August. These expand about four or five in the morning, and never close before noon; sometimes they remain open till nine at night.

38. *Hieracium Alpinum latifolium* (Syn., *Hypochæris maculata*).—Broad-leaved Hungarian Hawkweed.—These flowers are in their vigilating state from six in the morning till four in the afternoon.

39. *Hieracium ramosum* (Syn., *Hypochæris Achyrophorus*).—This plant opens its flowers about seven or eight in the morning, and closes them about two in the afternoon.

40. *Hieracium minus dentis leonis* (Syn., *Hypochæris glabra*).—These expand about nine in the morning, and close about twelve or one o'clock.

41. *Hieracium falcatum alternum*.—The flowers open at five or six, and close between the hours of ten and one.

42. *Hedypnois annua* (Syn., *Hyoseris Hedypnois*).—The flowers open at seven or eight, and close again at two in the afternoon.

43. *Hieracium montanum* (Syn., *Lapsana chondrilloides*).—Mountain Hawkweed.—The flowers are in their expanded or vigilating state from five or six in the morning till about ten.

44. *Cichoreum Sylvestre* (Syn., *Cichoreum Intybus*).—Wild Succory.—On the borders of fields, flowering in August and September. The flowers open about eight in the forenoon, and keep expanded till about four in the afternoon.

45. *Calendula arvensis* (Syn., *C. officinalis*).—Wild Marigold.—The flowers expand from nine in the morning till three in the afternoon.

46. *Calendula foliis dentatis* (Syn., *C. pluvialis*).—Marigold, with cut leaves.—The flowers expand from seven in the morning till three or four in the afternoon. Linnæus observes of this plant, that if its flowers do not expand about the usual time in the morning, it will almost assuredly rain that day; with this restriction indeed, that the plant is not affected by thunder showers.

47. *Sonchus pedunculis squamatis* (Syn., *Lactuca salicifolia*).—Of this plant it is remarked, that whenever the flowers are in the expanded state in the night-time, the following day generally proves rainy.

PLANTS ADAPTED FOR FORCING.

(Continued from page 55.)

BY MR. JAMES MAYOR, GARDENERS TO E. LISTER, ESQ., CASSIA LODGE, OVER
CHESHIRE.

LOBELIA GRACILIS. This is a very pretty and particularly useful plant, both in summer and winter. It is admirably adapted for the edgings of beds, but certainly not cultivated so generally as it deserves. It has been sufficiently long in this country to have become perfectly well known, having been introduced since about the year 1801. The flowers of this plant, we must admit, are small, yet the quantity (as it is a free flowerer) amply compensate for their diminutiveness. It thrives well in a mixture of sandy peat and leaf mould. To flower this in *winter* involves a *trifling* amount of labour or attention. This, added to other recommendations, would appear sufficient to raise it high in the estimation of all lovers of flowers; yet, strange as it does undoubtedly appear, it is, comparatively speaking, greatly neglected. The mode of raising and preparing this plant for winter is with us as follows:—In spring, the seeds are sown in pairs, the compost being as above; they are put into some moderate hot-bed, where they remain until the plants have attained a height of about two inches, when they are put singly into five-inch pots, then plunged in some border to remain over summer, when it will be advisable to shift each plant into a larger-sized pot, or one just sufficient to inclose the whole of the roots; then shaded, until the plant or plants survive the disturbance contingent upon their removal; after which they are removed to the house prepared for their reception, and in which it is supposed they will exhibit their beautiful blue flowers. This, like other plants at this season, must be judiciously supplied with water; this however may appear superfluous, having noticed the necessity of carefully watering before; but we are so perfectly aware of the pernicious influence of too copious applications of water, that we hope our recapitulation may be pardoned.

CUPHEA PLATYCENTRA, *Cuphea*, from *Kuphos*, curved, form of capsule. This plant is too well known to require us to enter into the minutiae of the thing; we shall therefore confine ourselves to a few remarks relative to its requirements previous to, and when subject to the winter treatment.

Anything tending to favour economy is, under most circumstances, gladly taken advantage of, but particularly in gardening matters; we think, however, and with good reason too, that the following method of preparing and forcing this plant will admit of no further economizing, having, as we believe, been reduced to the lowest possible scale. We will suppose that the plants in spring are nice healthy-looking *stuff* (if we may be allowed an expression common with the gardening fraternity), occupying five-inch pots; they are planted out into some bed or border, as circumstances determine, where they remain over

summer; during this time, if the weather should be hot and dry, copious applications of water should be made, not only as a preventive against the injurious effects of drought, but to encourage strong growth, which we find most suitable for our purposes in winter. In autumn, as we become apprehensive of the return of *frost*, we lift the plants with as much soil as will, under the circumstances, adhere to the roots, and convey them expeditiously to the potting-shed, and there put into pots; the size of the latter being determined by the dimensions of the ball. The compost used is equal portions of sand, leaf mould, and loam. Particular attention to drainage is requisite. We allow the plants to remain a few days in the shed, and then they are transferred to their place of destination, to enliven the scene with their beautiful flowers.

C. STRIGULOSA may be treated as the above; but the flowers of the latter are by no means so generally admired as the former, consequently not so frequently cultivated either as a *bedder*, or for forcing; but both are extremely subservient, particularly where variety is wanted.

AGERATUM MEXICANUM. This very useful plant is, as its name implies, a native of Mexico, from whence it was introduced about the year 1822. It is considered an annual, and one deserving as much attention as any that we are acquainted with. Its merits as a *bedder* cannot be too highly commended, and as a plant calculated to be of infinite service in winter, we have already had sufficient proof. However, as taste varies, we had better confine our encomiums, and proceed with our observations relative to its culture, which will not only be more acceptable, but of greater advantage than all the commendations we could advance.

CUTTINGS taken from the plants, preserved through winter, strike readily in spring inserted in sand round the edges of pots; and when rooted, they are potted into five-inch pots, the compost being equal parts of loam, peat, and sand. (Lifting being entirely out of the question, unless a little for the surface of the cutting pots.) As soon as the ball becomes sufficiently matted that the plants may with safety be shifted, they are put into about eight-inch pots, and then plunged for the remainder of the season in some border, but where they will not be liable to be drawn or become one-sided. The shoots must be kept pinched, to prevent the plants from getting leggy. Towards the middle of September they are lifted and potted, according to the directions given for the final shift of the *Lobelia*. Shade for a few days, at the end of which the plants may with safety be introduced into the house prepared for them, where they will soon begin to show flower, and ultimately, if due attention to the supply of air and water be paid, we do not hesitate to say that a profuse and successful bloom will assuredly follow.

(To be continued.)

OBSERVATIONS ON THE PÆONY.

BY A COUNTRY CLERGYMAN IN SOMERSET.

"There might ye see the pæony spread wide."—COWPER.

THE growing grandeur of the PÆONY FLOWER, which is so attractive even in our rustic gardens, seems to make it to reign EMPRESS over the floral tribe of humble parterres, and to possess a dignity which forbids the youthful hand to pluck it; and yet how few of the young admirers of Nature's gayest ornaments have not desired to possess a full-blown Pæony to embellish their juvenile garden:

"Scenes of my youth! ye stand array'd
In thought before my longing eye—
In all the change of sun and shade
I see the vision'd landscape lie."

In the emblematical language of flowers, the Pæony is given as a representative of bashful shame. Antiquity celebrates the virtues of the Pæony amongst the *wonders* of the vegetable creation. Fable gives us its origin, Æsculapius its properties, and *superstition* ranks it amongst *miraculous* plants, assuring us that demons will fly the spot where it grows, and that even a small piece of the root worn round the neck is sufficient to protect the wearer from enchantments.

PLINY mentions the PÆONY as one of the first known plants, and that it was so named in compliment to PÆON, a famous physician of antiquity, who, it is said, cured the wounds received during the Trojan war with the aid of this plant; and from him skilful physicians are often called PÆONII, and on the same account those plants which are serviceable in medicine are called *Pæoniæ herbæ*.

The ancient writers, who transformed *simple facts* into *fabulous histories*, for the purpose of *deifying* favourite mortals, relate that Pæon, who was a pupil of the great Æsculapius, first received the Pæony on *Mount Olympus*, from the hands of the mother of Apollo, with which he cured Plato of a wound he had received from Hercules; but this cure created so much jealousy in the breast of Æsculapius, that he secretly caused the death of Pæon. Plato, however, retaining a grateful sense of his service, changed him into the flower, which ever after bore his name, except amongst the Italians and Spaniards of modern days, who, in defiance of antiquity, have presumed to name it *Mountain-Rose*, because some of its species grow naturally in the mountainous parts of their countries. *Pliny* also mentions that it was called *Penicboran*, and *Glycysides* by some; but these names seem to have been dropped.

The *Pæonia corallina* is claimed by *England* as one of its natives, and *Gerard* informs us, that it grew wild *in his day*, on a rabbit warren, in the parish of Southfleet, in Kent; and this was called the male Pæony, and is the kind the root of which has been so highly extolled in medicine. *P. officinalis*, the superb Double crimson Pæony of our gardens, is a native of Switzerland, as also of the Alps, and has been in England ever since 1560, nearly three hundred years. We now, however, have an immense number of other species and varieties,

upwards of one hundred, which are too numerous to describe in this communication ; but shall be sent for the next month's Number. My principal object now is, to bring to the notice of the readers hereof the *PÆONIA MOUTAN* ; or, *Chinese tree Pæony*. The Chinese have been, from time immemorial, celebrated for their love of flowers, and attention to their cultivation, prior even to the existence of the Babylonian Gardens. That we did not sooner possess, in England, the superb *tree Pæony of China*, may have been owing to the vulgar prejudice which *formerly* existed, of treating all singular relations as "Travelers' Stories ;" for it was fully described as long back as *two hundred* years ; viz., 1654, when the first embassy which the Dutch East India Company made to China returned to Europe. The account of it was published in London (from a Dutch work), in 1669, and the following extract is from Nievhoff's description :

"There are several rare and well-scented flowers, which grow in these parts of China, that are unknown in Europe. In the province of *Suchew*, near to *Changking*, grow certain flowers called *Meutang* (*Moutan*), in high esteem amongst them, and therefore called the *KING OF FLOWERS*. It is said to have been cultivated *in China* upwards of 1,400 years. It differs very little in fashion from the European Rose, but is much larger, and spreads its leaves further abroad ; it far surpasses the Rose in beauty, but falls short in richness of scent ; it has no thorns or prickles, is generally of a white colour, mingled with a little purple ; yet there are some that are yellow and red. This flower grows upon a bush, and is carefully cherished and planted in all gardens belonging to the *Grandeess*, for one of the most choice flowers."

The Chinese writers differ in their accounts with regard to the origin of this shrub, some attributing it to a particular process of culture, by which the common *herbaceous* Pæony has been converted into this magnificent shrub, which is said to reach the height of ten to twelve feet in the province of Loyang, where the soil and climate is particularly favourable to it. Others of the Chinese authors tell us, and perhaps with more correctness, that the *Moutan* was first discovered growing among the mountains in Northern China, whence it was brought into the southern provinces, and there cultivated with the same *mania* as Tulips have been in Europe, some of the choice varieties of the *Moutan* having been sold in China for one hundred ounces of gold.

When these plants were first introduced into France, M. Noisette, a nurseryman in Paris, sold them from 1,500 to 2,000 francs each. The number of varieties now existing in our European gardens of these Pæonies amount to about one hundred ; a list I will supply, nearly all of which I have seen in bloom, some of them being most extraordinarily superb.

In a catalogue I obtained from Standish and Noble, of Bagshot Nursery, I observe that they have recently received some fine varieties ; and they state, "Of the many remarkable plants imported by us from China, these, if judged by the size and beauty of their flowers, are among the most attractive. In the magnitude of their individual

blossoms, in the diversity and richness of their colours, as well as in the profusion in which they are produced, nothing remains to be desired. The following sketch will afford an idea of their general characters. *First, of colour* : of *white* there are examples unsurpassed in intensity and clearness by any other flower, not excepting the old double white camellia. Of *rose* colours there are many shades, as well as of purples, and one rivalling the richness of the *Tuscan rose*. Then there is pale blush, light red, deep red, salmon-colour, primrose, peach-colour, and crimson, with various other tints and combinations of those above mentioned.

Some of the light-coloured ones have the bases of their petals deeply stained with red or purple. Most of the flowers are very double, some semi-double. In shape many are finely cupped ; more resemble the finest formed rose ; and others have anemone flowers. Of the last-named, a white and a deep red are fine examples. In size, too, they are remarkable ; some of the flowers produced last season on small plants measured eight, ten, and twelve inches across.

PROPAGATION.—I have tried the following methods with much success. When the Pæonies are *budding*, about February, a ring of bark, about one-sixteenth of an inch wide, was cut out all round the stem, above and below each bud in the stem or stems to be operated upon. The sap being thus obstructed, the branches were bent down flat, and buried in the ground, only leaving the leading shoot at the end above the ground. These shoots were secured to the place by a hooked peg or two, and occasionally water was given to keep the soil moist. In about six months, nearly every separate piece of the shoot had struck root ; I then had them potted, and placed in a cool frame for the first winter, and afterwards planted out in the open ground, or kept in pots, as desirable. The following are the methods of propagation which the Chinese adopt, with surprising success ; we are informed, not more than one in a hundred ever fails.

BY SEEDS.—These are often obtained very perfect, and to some extent seedlings are raised, sowing them in pots, and transplanting into the open ground to bloom ; but this is not so generally practised as are the following methods.

BY SUCKERS.—When suckers are produced by an old plant, the earth is carefully removed from about its roots, which are laid bare till the whole of the union of the sucker with the parent root is uncovered. They are then separated, but the wound of the old plant is suffered to remain exposed for a day or two till its surface dries ; dry earth is then placed about it, and care is taken that no moisture is applied for the space of a fortnight afterwards. The young sucker is enwrapped in fresh leaves, in which state it is kept till the lower end becomes shrivelled, and so much contracted, that the two opposite sides touch each other. It is then planted in rich earth, which is rather dry than otherwise, and kept well shaded till it has rooted ; care being taken to guard it from frost.

BY SPLITTING.—When the operation of splitting the stem is performed, an old plant is selected, and its stem is regularly slit into four or

six equal portions, from *the top to the very bottom* among the roots; the divisions of the stem are kept apart until the wounds begin to dry, when the middle of the stem is filled with a sort of plaster, made with mortar and rich earth, among which is mixed fat and a small quantity of sulphur. The plant so prepared is suffered to remain till the autumn, when each division is fit to be separated, with the portion of the root belonging to it.

Grafting is practised on the roots of the more common Moutans; when this is attempted, the root of the stock is laid bare during some weeks, to the depth of three or four inches; just before the autumn shoot is made, the earth is again heaped about the root, and soon afterwards, when the sap appears in full motion, the operation is performed. This is done in the way we call crown grafting. A kind of clay made with rich mould, formed into a sort of mortar with the expressed juice of Herbaceous Pæony roots, is then applied about the scion and stock. The plant is afterwards shaded from the sun, and protected from frost during winter; and when the spring arrives, it is left to take its chance. If the scion ever pushes, all danger of losing it is past,

FLORA OF MADEIRA AND ST. VINCENT.

We reached Madeira on the morning of May 21st. I intended to devote the few days of our stay to the study of the indigenous plants, but the uncertainty of our departure did not allow of distant excursions, and obliged me to limit myself to the vicinity of Funchal. I took immediately a walk along the south-eastern coast with Mr. Lowe, who kindly pointed out the habitat of many indigenous species, amongst which were chiefly *Mathiola Maderensis*, *Sideroxylon Mar- mulana*, &c. On Saturday, 22nd, I was early on horseback, towards the Ribiera Frio; where the choicest native plants are to be found: The road crossed Mount Church, where the barren precipices are at first covered with *Spartium scoparium*, higher up with *Laurus* and *Erica*, and then especially with the magnificent *Vaccinium Maderense*. On the summit it was dreadfully cold, with fog, sometimes like rain. The valley was filled with mist, clearing occasionally, just enough to see the *Laurus-trees* that hung down from the surrounding steeps. This *Laurus*, several interesting *Ferns*, and a few other plants, were, owing to the bad weather, the unexpectedly small produce of this trip. On the succeeding Sunday I chiefly visited the gardens about the town. The singularly favourable situation of Funchal, enjoying, in consequence of the protection afforded by the surrounding mountains against cold winds, an *invariably moderate temperature*, has been frequently dwelt upon. I had plenty of opportunity to observe this; for during my stay the weather was constantly fine and warm, with, at the utmost, a gentle shower; but once beyond the mountains, I experienced the most furious winds, and the valleys were filled with thick mists, loaded with as much moisture as heavy rains. Later in the season the weather is said to be fine and clear. The valley of

Funchal receives several rivulets, and had not at this time any deficiency of water. *Chestnut-trees* abound in the valleys, and the lower declivities are frequently covered with patches of *Pines*. To the gardens at Funchal the prevailing state of the atmosphere is highly genial, and they command splendid prospects towards the town and bay. One really may fancy oneself in the East when walking, and still more when riding between these gardens, which are enclosed with stone walls, over which it is easy to observe the numerous edges of roses full of bloom. The singular spectacle of the union of *Bananas* and *Pine-apples* with our *European fruit-trees* has been frequently noticed, and is particularly attractive to any new-comer. Horticulture, from what I could see, was chiefly practised for profit's sake; though in several gardens there were some choice plants, which struck, on account of their finer growth, the European traveller who had hitherto seen them only in the greenhouse or stove. Large *Dracænas* were rare. Whether this tree still occurs in an uncultivated state I know not: no one collects the *Gum-dragon*, except as a curiosity. Dr. Renton showed me some fine *Coffee-trees*, covered with fruit, of which the quality is said to be good. He regretted that instead of *Festuca Donax*, the *Bamboo* was not more generally grown, as it succeeds so well.

On Monday and Tuesday I made excursions in the valley called the Corral, and to the great waterfall, which yielded me, besides the common plants of Madeira, a few rare ones; viz., *Ranunculus grandiflorus*, *Sempervivum species*, *Sinapidendron frutescens*, *Bystropogon punctatus*, *Bupleurum salicifolium*, *Physalis pubescens*, &c. According to my experience, the flora of Madeira is of a thoroughly South-European character; only a very few plants, chiefly *Dracæna*, pointing out any extra European mixture. I do not speak of the neighbourhood of Funchal; a botanic garden there, established with proper judgment, would lead to very useful results. A novice in travelling revels in the southern forms here first offered to his view.

Of two individual plants I will only here observe, that the indigenous *Parietaria* is that known as *P. diffusa*. Of *Cassia*, I only saw *Cassia bicapsularis*, the true species flowering, but not in fruit during my stay. *Cassia ruscifolia*, which is indigenous according to Jacquin, in Madeira, certainly does not grow in the island, as I was informed, and that *Cassia accidentalis* exists only in a single garden. The history of these species remains therefore still obscure.

We left Madeira May 25th, and on June 3rd were off St. Vincent, Cape de Verd Islands. Sailing along the high cliffs of the western coast of St. Vincent, I looked anxiously for some traces of vegetation, but only distinguished far off a few shrubs, and it was dark ere we anchored at Porto Grande. I hastened the next morning early on deck, impatient to survey for the first time an entirely tropical vegetation. The back of the bay is sandy and flat, with a few cottages on the north-east side: beyond the shore rise hills overtopped in the distance by mountains. I could clearly descry two main valleys, reaching far inland, and exhibiting the same white sand as the beach.

Every place was burnt up and bare of vegetation, except a few shrubs in one of the valleys, whither I directed my first walk, and found these were *Tamerix Senegalensis*, a shrub mostly six or seven feet high, but sometimes a small tree, being the only plant, I might almost say the only object which in these valleys affords any shadow. After a search of four hours, climbing several hills, and crossing as many valleys, I only met with two plants, the same *Tamarix*, and a low shrub-like *Labiata* (*Lavendula formosa*?), almost dried up, with a few leaves and blossoms just opening. I found subsequently that this plant spreads over the whole island. The Great Desert cannot exhibit a more desolate aspect than this part of St. Vincent; yet the soil ought to be fertile, for it is a conglomerate of large and small bits of basalt, in a loamy and chalky soil, closely covered in many places with dried grass, forming natural hay, and furnishing scanty fodder to cattle and goats when they have not the *Tamarix* to nibble at. This soil only wants water; and we may guess, from these remnants of its vegetation, how fertile it must be, when supplied during the brief rainy season with some moisture, from August to the beginning of October. To the above mentioned plants of the plain I can add very few more. A small *Euphorbia*, perhaps *prostrata* or *serpyllifolia*, but appearing new to me, a few littoral plants, especially *Zygophyllum Album*, and on the shore *Cassia obovata*, just then in bloom and fruit, extending far up the mountains. This scanty harvest induced me to explore the higher regions for more botanical treasures; but even there I found the same barrenness. The mountain chain rising frequently to 1,500 feet, only afforded me a dozen species on its northern declivity.

Of the difference between the lower and mountain vegetation I can hardly speak; but it seemed clear that many plants, flourishing on the mountain, did also grow in the lower country, though now dried up.—“*Journal of the Niger Expedition*,” by DR. VOGEL.

MISCELLANEOUS SECTION.

DRAINAGE OF PLANTS GROWN IN POTS.—The general laws which regulate the vegetable economy are applicable alike to plants grown in the open ground, and to those cultivated in pots: the vegetative principle is never changed or altered, either in plants subjected to artificial treatment, or in those which may be said to occupy a more natural position. In accordance with this theory there is a trite saying, that plants, when grown in pots, should be treated in all essential particulars like those grown in the open ground; or, in other words, that the gardener should do in a pot what the farmer practises in a field; and since the system of drainage effects astonishing results in agriculture, it is not unreasonable to expect similar advantages from its application to the purposes of horticulture. But the operation of draining a pot requires to be performed with a perfect understanding as to the mode in which it is likely to have a beneficial effect. When only a piece of a broken potsherd, or any other substance, is placed over the hole at the bottom of the pot which is being drained, the percolation

and escape of superabundant moisture will, in all likelihood, be prevented by the pressure of the soil around it; the water will lodge at the bottom of the pot, and the roots of the plant will suffer, owing to the free circulation of air being impeded. It is, therefore, reasonable to infer that, besides the principal crock that covers the hole, other or additional materials are necessary. In the first place, the crock should be placed so that it does not lie *flat* over the hole; for, when lying positively flat, it is very apt to stop up the passage of the water. When the crock has been properly placed, it should be covered with a quantity of small pieces of brick, broken pots, angular stones of any kind, or similar materials; above this superstructure, which may range from an inch to two inches in depth, should be placed a layer of the same kind of materials, broken considerably smaller, so that the soil, when placed in the pot, may not choke up the interstices of the under layer, or even fill them too much in being pressed or shaken down. It is now well known that pieces of bricks and bits of charcoal, from their porous texture, act in the manner of a sponge for the azote, which is so essential to the nourishment of plants. Such substances become, in fact, by their physical action and chemical properties, an actual manure for plants. By means of them the soil in the pot is aerated, and the water passing rapidly off, the plant must, of consequence, be under the best condition to secure its health.

It may be readily conceived that if, in this under layer of drainage materials, there was placed a physical body constituted so as to operate in a three-fold manner: to retain one of the elements of the air, the most useful to vegetation; to allow the air to penetrate the mass of soil; and to facilitate the proper passage of the water from the roots—and which, at the same time, by gradual decomposition, incessantly transmitted from below fresh nourishment to the roots—a substance possessing these advantages would certainly be the most suitable to be used in the cultivation of plants in pots. Where great progress has been made in the cultivation of the soil, we see that not only is the ground traversed with drains and properly aerated; but it is also manured with substances which, by their gradual decomposition, minister to the daily requirements of the plants grown. Are similar results not attainable with plants cultivated in pots? We cannot hazard a negative reply to such a question. Some cultivators have adopted the system of draining the pots by means of broken or crushed bones, which, having the same absorbing qualities as the pieces of brick, even in a higher degree, are still more susceptible of gradual decomposition, especially after they have been treated with sulphuric acid weakened by water. The bones thus throw off or disengage a portion of ammoniacal gas, and furnish a quantity of sulphate and calcareous phosphate, all of which are essential to the nourishment of plants. Even for plants which admit only of being grown in peat, the beneficial effects of broken bones as drainage have been fully proved to be considerable and decided.



THE pits and greenhouses now offer the parterre their winter-stored plants, which are already commencing their growth, and are eager to breathe the pure air. Caution must, however, be exercised in being prepared for *occasional frosts*, with some *protection* at nights in case of need. If your plans are not yet fully arranged as to bedding out, &c., lose no time; particular attention should be paid with contrasting the colours to give a good effect. A flower-garden may be richly furnished with plants, but be very ineffective if the colours are badly arranged. For producing a brilliant effect in masses, reject party-coloured flowers; only use pure and decided colours, such as scarlet, pure white, deep purple, bright yellow, &c.; those which are in close affinity kill each other. Take care not to mix plants which are of *doubtful duration*, when in bloom, with those of a more *permanent character*, remembering always that the beauty of a formal flower-garden depends upon its being in all its details a perfect work of art, in which no blemish should occur. There must be high keeping, symmetry, judicious arrangement of colours (traceable to fixed principles), or it will not form a satisfactory whole. This should be particularly attended to. Many persons plant their stock so *thinly*, that their beds are not covered till late in the season; we advise *thick planting*, both for speedy and permanent effect.

When annuals are required for late flowering, they may yet be sown; and hardy annuals that have come up too numerously should be thinned out, so as to retain but enough to be vigorous. Tender annuals, raised in pots or frames, should be taken, with as much soil to the roots as possible, and *after the middle* of the month be planted out. After all planting is done, the next operations will be training and pegging down the plants; this is a most important process towards having well-furnished beds. Climbing plants will now require training from time to time, according to their growth.

FLORISTS' FLOWERS.—Amongst these we may class the *Antirrhinum*; many of the kinds now in cultivation are exceedingly pretty, and deserve to be grown. Now is the best time to plant them out. *Carnations* and *Picotees* are by this time in their blooming pots; and as they advance in growth, attention will be necessary to stick and tie them up neatly. Stir up the surface-soil of the pots, and add a dressing of mixed loam and well-decayed dung. *Cinerarias*.—As these go out of bloom cut down the stems, which will induce an abundance of shoots for increase, and turn them out into the open ground, where they are partially shaded. *Dahlias*.—The *last week* in the month is as early as it is safe to commence planting out. The young plants will be greatly strengthened by repotting them into larger pots, giving all the favourable air possible, in order to have them hardy when turned out. *Fuchsias*.—Repot and trim all the plants required for specimens; encourage their growth by frequently syringing them over head. *Pansies*.—Cuttings put in last month may now be planted in a shady bed, for summer blooming. A good watering in dry weather will be necessary. Such as are grown in pots, for show, require particular attention, and by thinning out the side shoots, much finer blooms may be had. *Pinks*.—As the blooming stems advance they will require thinning out. The more robust and very double kinds should have two or three stems left. *Ranunculuses*.—If dry weather continues, water must be liberally supplied; apply it between the roots and not over the foliage, and use rain-water if possible, preferring evening for the operation. *Tulips*.—The top cloth should at once be got on, and never let the sun reach the flowers after they show colour, but give all the air possible.

IN THE FORCING FRAME.

Continue to strike cuttings of stove and greenhouse plants, and pot off such as are struck. Plants intended to be flowering specimens for the greenhouse, such as *Achimenes*, *Gloxinias*, *Gesnerias*, &c., should be grown here, and brought forward as rapidly as practicable. What are termed greenhouse annuals, as *Balsams*, *Cockscombs*, *Salpiglossis*,

Rhodanthe, Thunbergias, &c., should be got on quickly. A strong stimulating soil, copious waterings, and ample pot-room, together with bottom heat, are inseparable necessities to their successful cultivation.

IN THE GREENHOUSE, &c.

A free ventilation is of importance, and by closing with a humid atmosphere early in the evening, a vigorous growth will be best promoted. Give liberal shifts to such plants as now require it before the roots become matted; much injury is often done by deferring until a general shifting. Camellias, such as have formed their flower-buds, should be placed in a sheltered and shady situation out of doors. Ericas should have the ends of their shoots pinched off, to render them bushy and spreading. Climbing plants should be neatly tied as they advance in growth, and abundance of flowers will be the result. Shrubby plants of weak growth, and which naturally make *long frail shoots*, are much improved by bending down the branches, and fixing them to a wire attached to the rim of the pot; in this manner the nakedness of the plant at its base is hidden, and the check imposed on the ascent of sap will induce an increased supply of shoots. Azaleas, when done blooming, *promote their growth*.

Pelargoniums.—Never allow the plants to flag, or the bottom leaves will turn yellow, and the plants then become naked. Put cow, horse, and sheep dung in equal parts, with a sprinkling of quick lime, into a tub, and to one peck of these add five gallons of rain, or other soft water. When taking it for use, draw it off clear, and give the plants a watering twice a week. Give air freely, shut up early, and syringe the plants overhead three times a week, till the flowers expand. Fumigate to keep down green fly.

WATERING.—See the *entire ball* is made moist. A few holes made by means of an iron pin down through the ball will admit water into the interior.

BRIEF REMARKS.

PRESERVING ANTIRRHINUMS THROUGH WINTER AND EARLY PART OF SPRING.—Many of the readers hereof no doubt have had to suffer the loss of a quantity of these plants during winter and spring. I have noticed that a considerable number of self-sown plants upon the top of an old broad brick wall always escaped injury, however severe the frost was, which I supposed was in consequence of being kept *rather dry* at the roots, as well as the tops being preserved from the effects of *too much damp air*.

I strike cuttings in pots about July and August, when the young shoots are about half ripened, cover with a bell-glass, and the pots plunged up to the rim in a spent hotbed, shading them from the mid-day sun. They soon root, and then are potted off into small sixties, threes or four in a pot. The pots get filled with roots before winter; I then place them in a frame upon a wood-barred trellis flooring, which is six inches from the ground. The frame is placed upon a brick, laid flat, at each corner, and thus a sufficient draft of air is admitted among the plants, and they are kept from the injurious effects of damp, and the roots are kept duly dry enough. I give all possible air in dry weather, and if continuous wet weather, I have the lights raised six or more inches, to preserve from too much wet, as well as give all necessary air.

I used to lose three parts or more of my plants during the above-named seasons, whether I kept the plants in large pots or the open ground; they used generally to perish in March or the beginning of April. Since I kept them in small pots, as above described, I do not recollect losing one plant. Early in April I separate the plants, pot singly into larger ones, or plant in the open ground, as circumstances require.—J. J. ASHMORE, *Manchester*.

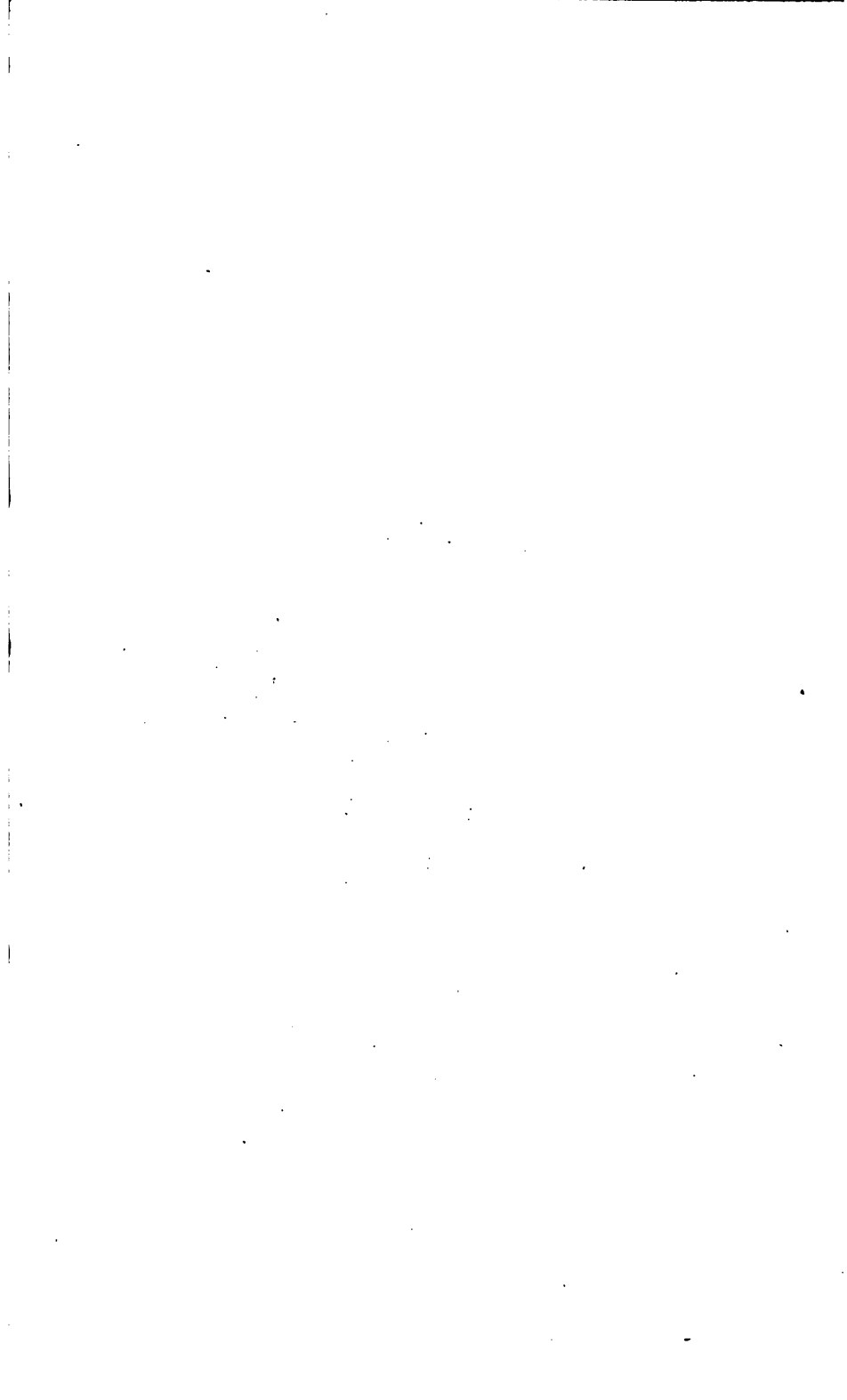
CONCRETE WALKS.—Observing in some recent Numbers of this Magazine the details of the formation of walks, as well as subsequent inquiries being made for additional information, I am induced to forward the particulars of an excellent method which I have adopted. It is not only well adapted for forming admirable walks, but also for its *cheapness*, which latter is of importance in the saving of materials, especially so where they can only be obtained but at a considerable expense. We had a considerable extent of walks which required a better surface, and as gravel was fourpence per bushel, it was necessary we should be economical, and make as thin a coat do as possible, so as to be effectual. A friend of mine, a gardener, had constructed several miles by the following plan; and having seen it succeed so well in all respects, I resolved to pursue the same

method last year, and *now* the walks are everything that can be desired. I had the old surface of the walks, to the depth of two inches or so, loosened, and then formed properly, so as to duly incline from the centre to the sides, and then the surface made tolerably smooth. This being done, I pursued the following plan, as given me by my friend, being the result of his own practice. He states, "I obtained coarse gravel at a cheaper rate, as well as some excellent grey lime, which we got delivered at eleven shillings per chaldron. To two-thirds of the gravel was added one-third of quick-lime, to which sufficient water was added to render the mass, when well mixed together, to a half liquid state, so that it would just remain in the barrow whilst removing it to the walk. About two inches and a half of this in depth was spread over the walk, and smoothed evenly over, when the materials had become sufficiently dry to bear a person without the foot sinking therein; but before it set hard a lightish roller was passed over it a few times, which produced an even face, so that water could not remain upon it. After being thoroughly dry, about an inch of fine gravel was laid over the entire walk, which was well rolled and made smooth. This process effects a great saving of the best material, and much better walks are the result than those constructed in the usual way; for whilst concrete walks remain unaffected by frost, worms, or deep-rooting weeds, other walks that had been previously formed with brick rubbish as a foundation, and three or four inches of gravel on the surface, have been puffed up by the frost, and the surface of the walks are disfigured by the mounds cast up by worms. As water will not pass through the concrete, a suitable proportion of side drains must be provided. Fresh burnt lime must be used, and the grey is preferable to the white." So far my friend's instructions were attended to, and I find the top coat of fine gravel can be readily loosened without in the least disturbing the concrete, so that a new surface may be effected as often as desirable, and be kept in a neat and clean condition, free from weeds or moss.—J. JACKSON, *Elms House*.

INGA PULCHERRIMA.—This is a very neat shrubby plant, with Acacia-like foliage, and is easily formed into a bush by occasional stopping of the leading shoots. The flowers are in tassel-like clusters, of a brilliant scarlet colour, and produced abundantly when the plant is duly attended to. The flowers are produced on the wood of the *previous year's growth*, so that the plant must not be cut in any other time but *as soon as the bloom is over*, then prune in and repot; get well ripened wood during summer and autumn; and if plants are put in a forcing-house or stove in October or November, they will bloom by Christmas or January, and others brought in in succession will bloom accordingly, so that their very beautiful flowers may be had as ornaments for the stove, greenhouse, or sitting-room from December to July, or later, by suitable treatment. It is easily grown, flourishes in equal parts of leaf mould, good loam, and fibry peat, with a mixture of silvery sand, and a free drainage. I grow it in the greenhouse or pit-frame at all times, except when put into the forcing-house or stove to bring out the blossoms. It is a handsome plant at all times, especially when in bloom, and merits a place in every collection of that class of plants.—WILLIAM ROSS, *Belle Vue, Liverpool*.

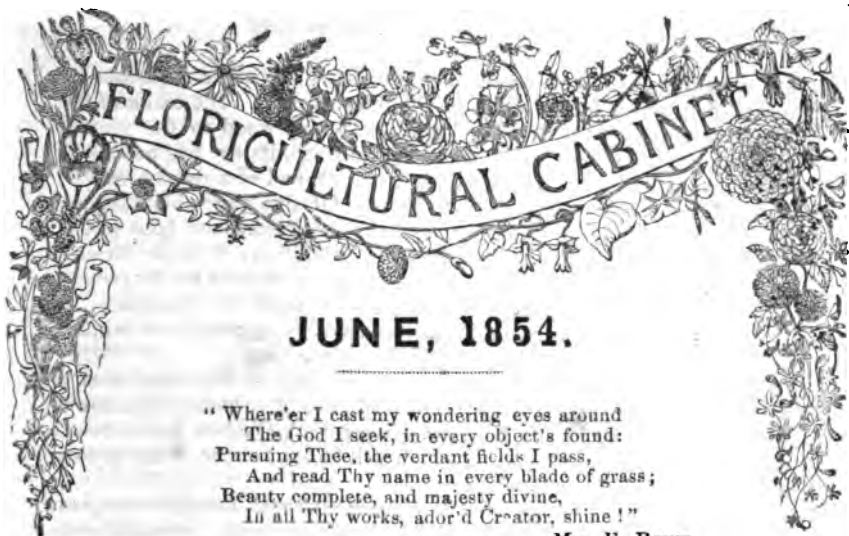
THE MOUNT OF ROSES, a circular colonnade, is fast assuming its fairy-like form and proportions in the grounds of the Crystal Palace at Sydenham. It is situated on an elevated mound, and is approached by six winding paths, which meet in an inner circle that is forty-eight feet in diameter, within a colonnade formed of 120 columns. Around the circle are twelve arches, thirty-one feet in height and sixteen in width. One of these arches spans each of the walks leading into the promenade, and there is one arch between every two walks. The spaces between the twelve arches are filled up with smaller arches, the columns supporting which are placed eight feet apart. There is a delightful walk, sixteen feet wide, round the entire colonnade, amid roses of numerous colours, diffusing a delicious perfume. The space between the walks, which radiate towards the centre, are covered with turf, on which seats will be placed. Shelter from rain will be provided beneath the corrugated iron roofs of the circular arches, round the lattice-work of which roses are trained.

NEW HOLLAND PLANTS in general, as *Gastrolobiums*, *Pimcleas*, *Boronias*, *Dilwynias*, &c., flourish best in a compost, as follows:—The weaker-growing kinds is a rich turfy, fibry peat, well broken by the hand (not sifted), intermixed with roughish silver sand and gritty sand, a liberal sprinkling, and to have a free drainage. The more vigorous-growing to have in addition to the above a sixth of good mellow fresh loam. A liberal sprinkling of bits of charcoal to both the kinds of plants are very beneficial.—A LONDON PRACTITIONER.





Wellingtonia gigantea



FLORICULTURAL CABINET

JUNE, 1854.

"Where'er I cast my wondering eyes around
The God I seek, in every object's found:
Pursuing Thee, the verdant fields I pass,
And read Thy name in every blade of grass;
Beauty complete, and majesty divine,
In all Thy works, ador'd Creator, shine!"

Mrs. E. Rowz.

ILLUSTRATIONS.

WELLINGTONIA GIGANTEA.

THIS most magnificent hardy evergreen, Coniferous Tree, from California, has, as many of our readers are already acquainted with, been recently introduced into England by Messrs. Veitch. Their excellent collector of plants, Mr. William Lobb, who lately returned to England, has furnished the following account of this stupendous tree:

"This magnificent evergreen tree, from its extraordinary height and large dimensions, may be termed the monarch of the Californian forest. It inhabits a solitary district on the elevated slopes of the Sierra Nevada, near the head waters of the Stanislaus and San Antonio rivers, in lat. 38° N., long. $120^{\circ} 10'$ W., at an elevation of 5,000 feet from the level of the sea. From 80 to 90 trees exist, all within the circuit of a mile, and these varying from 250 feet to 320 feet in height, and from 10 to 20 feet in diameter. Their manner of growth is much like *Sequoia* (*Taxodium*) *sempervirens*, some are solitary, some are in pairs, while some, and not unfrequently, stand three and four together. A tree recently felled measured about 300 feet in length, with a diameter, including bark, 29 feet 2 inches, at 5 feet from the ground; at 18 feet from the ground it was 14 feet 6 inches through; at 100 feet from the ground, 14 feet; and at 200 feet from the ground, 5 feet 5 inches. The bark is of a pale cinnamon brown, and from 12 to 15 inches in thickness. The branchlets are round, somewhat pendant, and resembling a Cypress or Juniper. The leaves are pale grass green; those of the young trees

are spreading, with a sharp acuminate point. The cones are about $2\frac{1}{2}$ inches long, and 2 inches across at the thickest part. The trunk of the tree in question was perfectly solid, from the sap wood to the centre; and judging from the number of concentric rings, its age has been estimated at 3000 years. The wood is light, soft, and of a reddish colour, like redwood or *Taxodium sempervirens*. Of this vegetable monster, 21 feet of the bark, from the lower part of the trunk, have been put in the natural form in San Francisco for exhibition; it there forms a spacious carpeted room, and contains *a piano with seats for 40 persons*. On one occasion 140 children were admitted without inconvenience."

The tree is quite hardy, and will endure, it is supposed, our winters without injury, in any part of the United Kingdom.

Mr. Lobb brought a living plant of it, as well as dry specimens of its wood, bark, cones, branches, and seeds, the latter having been sown, Mr. Veitch, of the Exotic Nursery, King's-road, Chelsea, has a considerable number of young plants, which will be sent out to order as soon as they are sufficiently established.

What a valuable acquisition is this monstrous, *beautiful evergreen* tree to this country! and no doubt it will become the principal *vegetable ornament* in every park, city, town, village, and hamlet throughout the country.

All must agree, at least in our own country, at the very appropriate name it bears to commemorate the greatest of modern heroes, WELLINGTON. Architectural statues in honour of renowned warriors have been reared, and others are in course of erection, in the populous places of our country, but at no very remote age these perishable materials will fail: yet the WELLINGTONIA GIGANTEA MONUMENTS will in each successive age increase in grandeur to a period which we shall not attempt to define, whilst the estimate of the age of those which Mr. Lobb discovered is, as above-stated, three thousand years.

Messrs. Veitch are highly entitled to the thanks of the public for their zealous, *but expensive*, efforts to enrich this country with the noble as well as beautiful plants of other climes. The best method of testifying to them of our thanks will be to purchase extensively of them what they so liberally have imported. This we think our countrymen in general will be disposed to do.

NOTES ON NEW AND RARE PLANTS.

ANGRÆCUM PERTUSUM.—*The Perforated.* A stove orchid, which is a native of Africa, and bloomed first in England with Messrs. Loddiges, and now in the collection at the Royal Gardens, Kew. It is of rather small size. The spike of flowers, drooping, is about five inches long, formed of numerous small greenish-white flowers, tinged at the end with yellow. (Figured in *Bot. Mag.*, 4782.)

BARKERIA ELEGANS. A stove orchid from Mexico, introduced by G. Barker, Esq., of Springfield in England. The flowers are produced in loose racemes, four or five in each. Each blossom two inches across,

petals and *sepals* large, spreading, white tinged with bluish inside, and delicate lilac-purple outside. *Lip* white with deep rose-coloured large blotches; and the *column* white, dotted with purple, and stained with yellow. The flowers are very handsome. It is in the collection at Messrs. Jackson of Kingston. (Figured in *Bot. Mag.*, 4784.)

DESFONTAINIA SPINOSA. Natural order probably *Solanaceæ*, but its appearance is very different from any other of that order we have seen. It is a stiff, erect-growing shrub, with glossy, *holly-like* foliage, each leaf being nearly three inches long. The flowers are in form like those of a *Corræa*, two inches long, drooping, of a fine scarlet colour, tipped with rich yellow. The plant blooms freely, and its flowers are very handsome. Mr. Lobb discovered it in Valdivia, South America, and sent it to Messrs. Veitch's, where it has bloomed. It merits a place in every greenhouse. (Figured in *Bot. Mag.*, 4781.)

IMANTOPHYLLUM MINIATUM. A very superb flowering *Amaryllidaceous* plant, which has been imported from Natal, in South Africa, by Messrs. Backhouse, of the York Nursery, where, in the *greenhouse*, it bloomed last year. It is nearly allied to the *Clivias*. The leaves are long, and two inches broad. The flower stem rises about a foot high, supporting an *umbel* of *twelve to fifteen* flowers. Each blossom having a foot-stalk about three inches long. A separate blossom, of six petals, when fully expanded, is about four inches across. The flowers expand about two at a time daily, or in two days or longer periods, but remain so long in bloom as to form, along with the others also expanded, a *fine head* for from two weeks to a month, according to temperature. Messrs. Backhouse state: "Our old plant has for the last two years produced fresh leaves and a flower stem about *every four months*. It has sent off several suckers." The *corollas* are deciduous, as in *Clivia*, to which I think the plant certainly nearer than to *Vallota*. The flowers are of a brick-red, with the lower portion of the petals of a yellow tinge. It merits a place in every greenhouse. (Figured in *Bot. Mag.*, 4783.)

SCHEERIA MEXICANA CÆRULESCENS. — (Synonyme, *Achimenes Scherii*.) The plant is as robust, and the flowers as large, as those of *Achimenes grandiflora*. The present plant, it appears, is very distinct from the *Scheerii Mexicana*, whose stems, and veins of the leaves, are deeply tinged with purple, whilst those of the *Scheeria Mexicana cœrulescens* are *entirely green*. The flowers of the former too are of a purple colour with a white throat, and those of the latter are blue with a tinge of red. The blossoms much resemble those of a fine-shaped *Gloxinia*, very handsome. They merit a place in every collection.

AZALEA INDICA VITTATA. The flowers are large, white-streaked, with lavender, purple, and a tinge of yellow on the upper segments, spotted with red, very handsome. (Figured in Mr. Van Houtte's *Flore des Serres*.)

AZALEA INDICA VITTATA PUNCTATA. Flowers large, white, beautifully streaked and spotted with rosy-lilac, very handsome. (Figured in Mr. Van Houtte's *Flore des Serres*.)

AZALEA INDICA STRIATA FORMOSISSIMA. Flowers large, which,

good form and substance, white flaked and spotted with light purple; very handsome. (In Mr. Veitch's collection.)

AZALEA INDICA SYMMETRY. A beautiful salmon-pink, of exquisite form, nearly *filling up* a complete circle, and of good substance. One of the very best.

AZALEA INDICA.—Beauty of Europe. It has the habit of *A. variegata*. Flowers fine shape, flesh colour, with a white margin, beautifully spotted and striped with carmine.

AZALEA INDICA GLEDSTANESII FORMOSA. Flowers good form and substance, white, with cherry-coloured streaks, very pretty.

AZALEA INDICA GLEDSTANESII EXCELSA. Violet and rose, fine form.

AZALEA INDICA JULIANA. Fine crimson, excellent form.

AZALEA INDICA CHELSONII. Fine orange-scarlet, excellent form.

AZALEA INDICA ASCENDENS. A bright red, fine form and substance.

SALVIA IANTHINA. This *Salvia* has the habit of *Salvia splendens*, and blooms very freely. The corolla, calyx, and bracts, are of a rich purple violet colour, and are strikingly handsome. Each blossom is about two inches long. They are produced in large, terminal, long-spiked heads, and make a fine contrast with the other species. (Figured in *Flore des Serres*.)

BEGONIA MINIATA. A compact bushy plant, of the habit of *B. fuchsioides*, bearing large drooping racemes of salmon-orange coloured flowers. Very pretty.

CANNA WARSCEWICZII. A compact growing plant, blooming freely through winter. The flowers are a rich crimson colour.

ECHITES PELLERII. A compact growing plant, blooming very freely. The flowers are of a beautiful yellow colour.

GLOXINIA LEONINE VAN HOUTTE. Flower very distinct and handsome, a delicate pink with white centre, and the white extends all round the throat, also of good form.

GLOXINIA WHITE PERFECTION. It has the habit of a *Sinningia*, with deep green glossy leaves, and pure white flowers, blooming for several successive months.

LAGERSTROEMIA INDICA ROSEA. A dwarf bushy plant, blooming in profusion. The flowers are borne in large branching panicles, drooping, of a beautiful rosy-pink colour. Ought to be in every stove and warm greenhouse.

PASSIFLORA DECAISNIANA. It belongs to the *P. quadrangularis* section. Flower very large, petals a rich lilac-purple; centre blue and white. It blooms freely through winter. A valuable acquisition.

BEAUFORTIA PURPUREA. A compact, neat shrubby plant, with *Acacia*-like neat foliage, bearing a profusion of tassel-like thread-formed flowers, of a bright crimson colour. Merits a place in every greenhouse.

DILLWYNIA CINNABARINA. A neat evergreen shrubby plant, bearing a profusion of vermilion-coloured pea-shaped flowers, very pretty.

DILLWYNIA SCABRUM. A neat evergreen shrub, produced in pro-

fusion its clusters of pea-shaped flowers, of a rich scarlet, edged with bright yellow. A very handsome species, and deserves a place in every greenhouse.

HYDRANGEA HORTENSIS FLORE-PLENO. No doubt every reader hereof has admired the noble *Hydrangea* of our houses and gardens. There now exists a *double blossomed* variety, which has been raised on the continent, and plants can now be had in our own country. Its flowers too may probably be changed to blue, as is the case with the old species.

EPACRIS MINIATA GRANDIFLORA. It is more robust, bushy growing plant than *E. miniata*, and the flowers are much larger; tube bright crimson, tipped with pure white, very superior to the *E. miniata*.

EPIPHYLLUM TRUNCATUM, VARIETY SNOWII. The plant is dwarf and spreading, blooms profusely. The flowers are of a bright shining purple. It is a charming winter-blooming plant, and ought to be in every greenhouse.

ERIOSTEMON PULCHELLA. A small, neat growing greenhouse shrub, very distinct; flowers white.

GAMPHOLOBIMUM ALBUM. A dwarf compact-growing plant, with flowers of a creamy-white. Very distinct and handsome.

HOVEA BERENSII. The foliage, as well as the flowers, are larger than *H. Celsii*; the blossoms are of a rich blue colour, very fine.

PASSIFLORA BENOTTII. An hybrid between *P. cœrulea* and *quad-rangularis*. Petals of a beautiful fleshy pink and green, with the centre blue. Very handsome, and ought to be in every greenhouse, either to train at large, or grown in a pot, and trained to a wire frame work.

VERONICA SPECIOSA VARIEGATA. A very pretty variegated variety.

HEDAROMA TULIPIFERA.—(Genetylis tulipifera of some.) Mr. Drummond discovered this pretty, shrubby plant in Australia. It has somewhat the appearance of a *Beaufortia decussata*, or *Pimelea decussata*. The flowers are produced at the ends of the branches, drooping, greenish-white cups, each about an inch and a half deep, stained with dull red, and at the base passing into leaves, but the real flowers stand in a crowd within the base of the cup, which is an involucre. Each flower is inclosed by two scales, the upper half of which is stained with rich crimson. Mr. Drummond stated that the flowers hung like bells, or reversed tulips, at the ends of the under branches. Mr. Backhouse, of York Nursery, we believe, first introduced this fine plant into this country. The following are very pretty hardy herbaceous plants, now in bloom:—

Pentstemon nitida. It is a dwarf spreading plant, with shining green foliage. The floral stems rise about nine inches high, one-half of which is composed of flowers. They are produced in close whorls, of a fine bright blue, and in profusion. It merits a place in every flower garden.

CHEIRANTHUS OCHROLEUCA. A spreading plant, the floral stems rising about six inches high. The flowers are produced in profusion in short spikes, in the manner of a wallflower; they are of bright lemon

colour. It merits a place in every flower garden. Where an edging for a flower bed is required at this season of the year, these two plants are well adapted for the purpose.

SAXIFRAGA GRANULATA PLENO.—A spreading plant. The floral stems rise about nine inches, bearing fine heads of pure white, *double* flowers. It is alike pretty in patches on the borders, in pots, or on a rock work. Blooms in profusion.

GEUM INTERMEDIUM. The floral stems rise to a foot or more high. The flowers are of a rich golden yellow, each blossom in form like those of a *Potentilla*, about two inches across. It is very handsome, blooming freely.

VALERIANA OLEOREA.—A spreading bushy dwarf plant. The floral stems rise about a foot high, and the blossoms are borne in fine branchy heads, when in bud of a bright pink, and white when expanded. It blooms profusely, very neat and pretty,

POLEMONIUM RICHARDSONII.—A spreading, compact plant, with pretty tansy-like foliage. The floral stems rise a foot or more high. The blossoms are larger than those of the *P. reptans*, of a lighter blue, and in profusion.

VIOLA CUCULLATA.—A vigorous, bushy plant. The flowers are produced on stalks ten inches long, of a rich blue-purple, with a white eye. Each blossom is an inch and a half across.

PEONIA TENUIFOLIA FLORE-PLENO.—The foliage is very neat, somewhat fennel-like, but more compact. The floral stems rise about fifteen inches high, each bearing a large *and very double* flower, of a rich crimson colour. It merits a place in every flower garden, being very pretty.

AJUGA REPTANS VARIEGATED.—A very pretty plant. It blooms as freely as the wild species, and its numerous spikes of fine blue flowers in contrast with the green and yellow variegation of the leaves is singularly handsome. It is a spreading bushy plant, the floral stems about six inches high.

THE DOUBLE BLOSSOMED PRIMROSE.

BY ELIZABETH RECTORY, NEAR REIGATE, SURREY.

FOR many years these pretty lowly spring ornaments have been pets of mine, and rank high in my estimation; as also do the single flowered of both our fields and gardens, and I fully enter into the spirit of our poets when they pay extra honours to these sweet flowers.

The poems of Clare are as thickly strewn with Primroses, as are some of the woods near to my residence, which are carpeted by them. The two following passages are from the *Village Minstrel*.—

“ Oh! who can speak his joys when spring's young morn
From wood and pasture open'd on his view;
When tender green buds blush upon the thorn,
And the first primrose dips its leaves in dew ?

" And while he pluck'd the primrose in its pride,
 He ponder'd o'er its bloom 'tween joy and pain ;
 And a rude sonnet in its praise he tried,
 Where Nature's simple way the aid of art supplied."

In another poem, after describing the village children rambling over the fields in search of flowers, he continues :—

" I did the same in April time,
 And spoilt the daisy's earliest prime ;
 Robbed every Primrose-root I met,
 And oft-times got the root to set ;
 And joyful home each nosegay bore,
 And felt—as I shall feel no more."

The following *double* kinds form my present collection, amounting to about one hundred plants :—Double crimson, white, purple, straw colour, rose, deep yellow, pink, buff, lilac, and red,—each being very double and most distinct. I am fully assured if the entire of them were seen when in bloom in my flower garden, as presented to view from the breakfast-room, in a sunny spring morning, they would not fail to please every lover of flowers.

I grow them *in pots*, as it admits of affording them more readily the *necessary protection in winter*, and because the delicacy and beauty of their flowers render it desirable that they may be placed in a position where these qualities may be duly appreciated and admired. I plunge the pots, covering them with soil, in the various positions in my flower-beds, so as to give the finest effect in contrast of colours. The most particular points in their culture are, first, the soil in which they are planted ; and secondly, the situation afforded them during the summer. The soil in which they appear to thrive most permanently should be composed of equal parts of sandy turfy loam, and well reduced leaf mould, to which a portion of sharp sand may advantageously be added. This should be prepared some time before it is required, and frequently turned over and well blended together : the situation which they absolutely require in summer is a cool border, where they may receive the morning sun before it becomes powerful, but be protected from it during the hottest part of the day ; in such a situation they should be planted out in spring, as soon as they have done flowering, in the prepared soil already recommended. Water during dry weather should be copiously administered in the evening, or after the heat of the sun is somewhat declined, continuing it as circumstances may appear desirable, until the summer growth of the plants is evidently matured. About the latter end of September they should be carefully taken up, and potted into *wide shallow pots*, of sufficient size not to cramp the roots, using the compost already recommended : the only further care they require is, to place them in a cold frame, where they will be just protected from frost, keeping them comparatively dry, and carefully watching that snails and slugs do not eat off the flower buds as they advance. It is scarcely necessary to say that light should, as much as

possible, be admitted, never keeping the frame covered in the day, except during very severe frosts, and taking care to allow a free circulation of air in mild weather.

I have a quantity of pots, whilst the plants are in bloom, in my sitting-room, where they flourish beautifully, and give a sweet cheerfulness to it. I also possess about a dozen pretty kinds of the single flowered, which adorn a border in the pleasure ground.

CULTURE OF DAPHNE ODORA.

BY A NOBLEMAN'S GARDENER IN HEERTS.

OBSERVING that one of your numerous subscribers requests to be informed of the best method of cultivating that much admired plant, the *Daphne odora*, and as it is now the blooming season with that deservedly esteemed plant, I should advise your correspondent to pot the plant in *peat and sandy loam*, or equal portions of peat and loam, with a little sand added, taking care first to drain the pot with plenty of drainage, that the plant may not get water-logged, which is very injurious to it. Particular care is requisite too not to let it get dry, for if it does, it often proves fatal to the scented flowers. I would advise keeping it in a heat of about 55 to 56 degrees, which is quite warm enough. The plant should stand in a window where it can get plenty of air. If your correspondent has not any greenhouse or stove, it is very injurious to plunge it in as a shrub in a conservatory or in any ground, as it keeps it too wet.

Care should be taken not to *over pot* the plant, as it seems to thrive best if rather under potted. If your correspondent follows this treatment, it will, I have no doubt, be attended with complete success. With such attention we now have a splendid plant, blooming at every young shoot.

FANCY PELARGONIUMS, AND CAPE PELARGONIUMS FOR BEDDING PURPOSES.

BY A NOBLEMAN'S FLOWER GARDENER IN STAFFORDSHIRE.

HAVING very extensive flower gardens under my care, I am under the necessity of providing as great a variety of plants as possible to fill upwards of two hundred flower beds, and a quantity of vases, &c. I have therefore had recourse to try all likely plants for bedding purposes. We had an immense stock of the scarlet geraniums (so called); I therefore tried every *Fancy* and *Cape* geranium I could procure in order to ascertain which would bloom freely and prove sufficiently showy for a bed, either an entire bed, or in a bed of mixed kinds: and the result has been, by a proper course of treatment, these sections of *Pelargoniums* are most charming bedders, and the singular varied Fern-like foliage of some, with the pretty sweet lemon-scented and others of that

class, as well as that of the general show class of *Fancies*, and the *Dianatum* family, produce a very good effect, and contrast, with the large-leaved scarlet class. The flowers too are so very different from the scarlet class, both in forms and colours, that they create a very pleasing interest in the flower garden.

In order to assist in promoting the general culture of this class of plants for bedding purposes, I beg to offer a few remarks for their proper management:—

In the first place the plants must be *duly prepared*, for if this is not attended to, especially the sweet-scented-leaved kinds, they will not be found to bloom so profusely and continuously, as they otherwise would be.

The first requisite, then, is to stop the leads of the shoots late in the spring, so as to prevent their blooming until they are planted in the open ground: for if you turn out plants which have been blooming for some time in the greenhouse or pit frame, with the expectation that they will continue in bloom for any length of time, or with regularity, you will be much disappointed; but turn out young free-growing healthy plants into good soil, and they will realize every expectation. These kinds of Pelargoniums also require *good ground*, that is, it should be well *drained*, and the soil should be rich and open. If not naturally so, add leaf-mould and gritty sand to the soil, or take out the old soil to the depth of 13 inches, and replace with prepared compost of loam, leaf-mould, and sand. Through the summer, especially if the weather be dry, water the *bed* occasionally with weak manure water, observing however, at the same time, not to induce *very luxuriant* growth, or rather *growth* at the expense of flowers. The beds must be rather *closely* filled at first, so that they may soon form a compact mass, and not be seen as stragglers, by standing at a distance from each other. In this latter way the beds are quite unsightly, but *well filled* at first they compose an object of beauty and admiration.

The following are excellent sorts for bedding, blooming freely, showy, and having neat foliage.

FANCY CLASS. *Delicata*,—beautiful blush-lilac with a bright spot on upper petals: a profuse bloomer. *Annette*,—white with rose spots: an abundant bloomer. *Lady Flora Hastings*,—white with large dark spots on upper petals. *Statiaskii*,—rich dark crimson velvet, with a light centre, and light margin: free bloomer. *Carlotta Grisi*,—violet and crimson: profuse bloomer. *Floribunda*,—white with bright rosy crimson on all the petals: an abundant bloomer. *Triumphant*,—a bright crimson, with white centre: a profuse bloomer. *Perfection*,—bright rose with white edging: an abundant bloomer. *Pilot*,—white, with a dark spot on the middle of each petal: a profuse bloomer. *Modesta*,—with large blotches of bright rose, and a white margin: an abundant bloomer. *Gaiety*,—a rich mulberry, with a white margin: most profuse bloomer. *Belle Marie*,—a rich velvet, edged with crimson: an abundant bloomer. *Queen, Superb*,—white with bright pink free bloomer. *Cleopatra*,—white with a rich blotch on each petal: a profuse bloomer.

SWEET SCENTED LEAVED.—*Citriodorum majus*,—very fragrant, white with dark spot. *Citriodorum purpureum*, *C. violaceum*, and *C. roseum*: bloom freely, and are pretty. Prince of Orange,—neat habit, white with dark spot on upper petals: free bloomer, and continues all the summer. *Odora punctata*,—top petals narrow, lower ones rose, each petal having a crimson spot: free bloomer. *Odora variegata*,—its white and green foliage add to its beauty in contrast with the flowers. Prince of Orange variegata,—this is a very pretty, green and white leaved variety: it contrasts very admirably with the green leaved one. Fair Emily,—it has a smallish oak-leaf like foliage, green with black veins: the flowers are rosy-blush with a crimson spot on upper petals, and a profuse bloomer. Fair Helen,—oak-leaf, flower white with rosy crimson spot on upper petals: it must not have too rich a soil.

HYBRID VARIETIES, and SUNDRY SPECIES.—*Diadematum* •*Sidonium*,—rosy-pink and crimson: very free bloomer and large flower. *D. Sidonium variegatum*,—leaves green with a cream-coloured margin: flowers rosy-purple. *D. Addisonii*—deep scarlet: fine. *D. Bijou*,—top petals rosy carmine with a purple spot, lower ones with violet veins: centre of blossom white. *D. Splendidum*,—orange-carmine ground with large crimson blotches, and white centre. *D. Coquette*,—bright cherry, with fine dark spot: centre white, tinged with violet. *D. Sidonium floribundum*,—similar to the original: blooming freely. *D. Spinii*,—a bright shaded rose and pink. All the above are beautiful, and form charming beds, having large flowers. *Macbeth*,—much like *Purple Unique* in appearance: flowers rich violet purple with white spots: free bloomer. *Moore's Victory*,—pretty foliage: flowers a rich scarlet with velvet spots: soil not to be too rich, but half fresh turfy loam and leaf mould, with white sand and a good drainage. *Quercifolium—superbum*,—pretty oak-leaf, white with rosy-red spots: blooms profusely. *Dandy*,—a very dwarf bushy plant, with neat, green, small leaves; makes a neat edging about six inches high.

VARIEGATED LEAVED.—*Dandy variegata*,—leaves green with white margin: a pretty plant for edging, or in a vase. *Lady Plymouth*,—leaves in form of the old Otter of Rose, scented, green and white: very beautiful, and forms a neat dwarf plant. *Lateripes variegata*, or striped ivy-leaf,—green with white stripes: flowers white.

I omit the variegated kinds of the Horse-shoe *Geranium* Class, (so called). These are known, and have long been in use for bedding. My object is to give the description of the others not generally known, to succeed well as bedders. The description of the best of the *Cape Class* I leave for next month's number.

THE EPACRIS.

BY MR. JAMES MURRAY, GARDENER, NEATH HOUSE, NORTH BRITAIN.

AMONGST the great improvements by raising hybrid plants, which has been realized during the last ten years, I think none have exceeded that which have been effected (with *hard-wooded* plants) in

the genus *Epacris*. But a few years ago, we had a *very limited number*, and now we possess, in species and varieties, upwards of one hundred. In the nursery establishment, where I served seven years, and but recently left, we had ninety-three different kinds, and, since my return into Great Britain, I find several other sorts, a valuable acquisition to our greenhouses, some of them in bloom during all the year, but especially are they ornamental during the *winter* when flowers are doubly valuable and interesting. In spring and the early part of summer they rank with the gayest, and though much improvement has been effected, I think it is far from completed.

There is now wanting a number of rich and brilliant-coloured flowers in the way of *impressa*. No doubt most of the readers know this lovely white blossomed plant with spikes of white flowers an extraordinary length. Now if we can obtain, and that can be done, some varieties with scarlet, orange, crimson, and purple blossoms, it will well repay for the attention. Besides some of the *light-coloured* summer flowering being impregnated with the brilliant rich coloured usually blooming in the winter and spring, we might have a number of splendid varieties for *summer ornament*. By impregnating the white and pale coloured ones of the *E. campanulata* and *E. hyacinthiflora* with the high-coloured ones, we should be certain to have improved-coloured varieties of those lovely *bell-shaped* flowers. A great deal can be done in improvements, and I hope some of our amateur plant growers, who have spare time to attend to it, whilst practical gardeners in general have not, will turn their attention to the matter. To accomplish everything desired in this respect will be a work of time, but we possess the materials, and the attention would be the most interesting that an amateur plant-grower could undertake. Of all the pleasing parts of gardening, that of raising seedling varieties is the most exciting, for, from the time the seed becomes a tiny plant, until it arrives at blooming maturity, there is constant change; at one time you think it will be like this, at another like that, and, as the day approaches for the opening of the first blossom, the excitement becomes more intense, and "hopes" which are buoyed up to-day, become "fears" to-morrow, while the *finale* will frequently show that those plants upon which we had pinned our faith are valueless, and that some apparently worthless "wee thing," will prove the real California after all. One cardinal point in cross-breeding must never be lost sight of, and that is to improve the *constitution* of the plant at the same time that you improve the *flower*.

In treatment, the *Epacris* require much the same as Heaths, that is, a good free open peaty soil with plenty of grit and sand, liberal treatment during the growing season, and well ripening in the autumn to ensure bloom. In potting give *plenty of drainage*, reduce the soil into a tolerable fine broken state, and pot the plants *firmly*. The best place for the plants after potting is a tolerably close frame, but here they must have *abundance of air* when they get established. When selecting plants, take care that they are strong, bushy, and well rooted, with the roots in a fresh vigorous state. Such plants may receive a liberal shift,

but, if they are at all stunted, a small shift will be preferable. Such kinds as *impressa*, *campanulata*, *miniata*, &c., require to be *closely cut in after blooming*, so as to get young vigorous wood from the centre, and this, if it is intended for blooming, should be allowed to grow at full length; but, on the *first formation of a young specimen*, the shoots *must be stopped* to form a bushy plant; and hence bloom must be sacrificed for a season. When the plants are thoroughly established, to ensure their blooming properly they must be exposed to the full sun from the beginning of July until September; in fact, they should be placed in an open part of the garden where both sun and air can act upon them on all sides. Thus treated, such kinds as *grandiflora* and *miniata* may be made to bloom regularly; and the more thoroughly the wood is matured, the brighter is the colour of the flowers likely to be.

The following are the best kinds I have seen in bloom since my return home in visiting the Royal Gardens and principal nurseries. They ought to be grown in every greenhouse:—

- Epacris mucronata*, bell-shaped, snowy white, in heads.
- E. coccinea*, tube one inch long, rich deep scarlet.
- E. albida*, tube one inch, bell-shaped, pure white.
- E. hyacinthiflora*, three parts of an inch, bell-shaped, a beautiful rosy-blush; superb.
- E. alba-compacta*, one inch long, wide tube, pure white; fine.
- E. alba-campanulata-rosea*, half an inch, bell-shaped, beautiful rose; superb.
- E. campanulata-rubra*, size and form of last, but of rosy-red colour.
- E. limatis*, one inch, bright pink, with white tip.
- E. sanguinea*, one inch, deep blood-red; fine.
- E. nivea*, half an inch, bell-shaped, white; pretty.
- E. variabilis*, half an inch, bell-shaped, a beautiful pink.
- E. rubra grandiflora*, half an inch, bell-shaped, in bud bright red, pretty pink when open.
- E. ternatus*, one inch, pretty pink, with white tip.
- E. impressa*, nearly one inch, a beautiful flesh-colour; neat and pretty.
- E. miniata splendens*, bright orange scarlet, pure white end.
- E. autumnalis*, one inch, vivid crimson; showy.
- E. microphylla*, white, in very long spikes; neat and pretty.

REMARKS ON EPIPHYLLUMS, CEREUS, ETC.

By MR. JAMES SAWARD, NORTH BRITAIN.

THE culture of the Cactus order of plants I find divides into two or three distinct methods of treatment. For *Cereus grandifloras*, *C. serpentinus*, and their allies, the rafters of a stove, and not the back wall (most frequently their station), is the most suitable trellis, where they can extend to a proper size to flower, and can have the full benefit of sun and air. The different species of *Epiphyllum*, *Cereus speciosissimus*, and others of the order most nearly allied in habit, require a richer

compost, more water, and an autumn ripening out of doors. The melon shaped Cacti want an airy situation, and every ray of sunshine our climate is capable of affording them. They all require thorough drainage great attention in watering, full exposure to light, and a hot and dry exposure, to ripen and fit them for flowering.

A good mellow loam, white sand, and potshreds broken small, are the principal requisites for a compost for most of the Cactus Tribe, of plants, and manure of any kind must be sparingly used, except for the Epiphyllums, and other *free* growing and flowering sorts. But even with them perhaps an occasional watering with liquid manure would be preferable, as any crude manure in the compost would be liable to retain moisture too long, and retard their ripening in the autumn. A sufficient drainage of potshreds to secure the plants against the least chance of damp, and allow water to pass freely through, is of the first importance, and, broken small and mixed with the compost, is of great use to the Melocacti and all the smaller species. Another point not sufficiently attended to is, to be very careful not to overpot even the strongest growing sorts. In fact, this is the besitting sin of many gardeners with almost every description of plant.

When the Epiphyllums have done flowering, well thin out the least promising of the old and young wood, pot them into a good loamy compost, with less sand and more manure than for any of the other species, and set them into a moderately warm house until they begin to grow freely. An airy but warm greenhouse will soon be the fittest place for them, as, if kept too close, no wood of any strength will be produced. As soon as they arrive near their strongest growth, reduce their allowance of water gradually, and when they feel firm and have nearly done growing, put them out in a hot place, exposed to as much sun and air as possible, but protected from wet. They will not shrivel for a long time, and those that do will be generally found to be deficient of a proper supply of roots, and not properly ripened. Plants thus managed will be found to flower well, and can be forced or retarded so as to produce their flowers for a considerable length of time.

TREATMENT OF SPARAXISES.

MR ROSIER, AMATEUR FLORIST, OF TERRINGTON, IN HEREFORDSHIRE.

THE Sparaxis and Ixias are great favourites of mine, many of both families I grow, with a success which I have not seen equalled elsewhere, and I am certain if the readers hereof who do not at present cultivate these beautiful and showey blooming plants, did but see my display when in full bloom, comprising flowers of almost every hue, their cultivation would soon become far more general, and especially when the bulbs can be obtained at so cheap a rate from Jersey and Guernsey; also being so easy to manage and requiring but a very trifling attention.

For the present I shall direct attention to the treatment required

with the Sparaxises, and scarcely any thing is handsomer than their gay, expanded blossoms are, arrayed in golden, scarlet, velvet, white, rose, green, pink, red, purple, and crimson colours.

In our own country the greater part of the kinds I find will grow well in a south border, planted about six inches deep, within two or three inches of the wall; or at the front of a greenhouse, conservatory, stove, &c. The soil should be a sandy vegetable mould, as the frost is likely to affect the bulbs in winter. When planted in such a situation, however, a covering of dry leaves, sprinkled over with soil, that they may not be blown away, is found beneficial. When so cultivated, they bloom much more vigorously than when grown in pots, and continue to bloom from May to August. I have seen them in some instances push flower-spikes to the height of three feet; and in Guernsey I have been informed they have attained even four feet.

When they are cultivated in pots, the compost should be formed of a mixture of sandy loam, decayed leaves, and peat-soil, in equal proportions. The pots should have a very free drainage.

The time of planting is October, the bulbs being inserted an inch deep; immediately after they should be placed in a cool frame, as they only require protection from frost, till the pots are well filled with roots, when they may be set on the shelves of the greenhouse, and properly attended with water, &c.

When they have done flowering, water should gradually be withheld, the pots be placed where they will be kept dry, till the proper season for repotting, when the balls of earth being carefully broken, the bulbs can be dressed without sustaining injury. By keeping the bulbs undisturbed in the pots as they had grown, they retain their firmness much better than if disturbed, and flower more vigorously than when disturbed as soon as the foliage decays.

I find them readily increased by offsets or seeds. The former may be taken off at the time of repotting. Seed should be sown early in spring, in order to allow time to obtain good sized bulbs previously to autumn.

The varieties have been greatly increased by hybridizing, within the last twelve years, and many very beautiful kinds been obtained. I have eighty six beautiful kinds, nearly all of my own raising. It has especially been attended to by cultivators of flowers in Guernsey, and any attention paid has been more than repaid by the valuable productions they have obtained.

ADVANTAGES OF DEPRIVING PLANTS OF THE SOFT WOODEN CLASS OF THEIR EARLY FLOWER-BUDS.

By MR. JAMES SMITH, GARDENER, AT WESTBROOK HOUSE, YORKSHIRE.

In an article on the double Chinese Primroses, I expressed a probability of resuming my remarks on the above subject, to which you were pleased to invite me. In now reverting thereto, I must disclaim any pretensions to reducing such operations to a rule, and content

myself by an endeavour to awaken an inquiry that may add another link to the chain of culture, by which many flowering plants may be brought to exceed even their present excellence. In my treatment of the above plants it was my aim to *retard the production of flowers* until the plant shall have *attained a luxuriance of growth* sufficient to support the most ample display of blossom. In order to effect this in any flowering plant, it will be necessary to check too early flowering by immediately removing every flower-bud that may appear until the greatest expansion of foliage be ensured. I fear this is too often neglected by amateurs, to whom only these remarks are addressed; and the penalty of early pubescence is defective bloom, if not total abortiveness. Permit me here to repeat the words of Mr. Joseph Hayward. It is remarked by Mr. Hayward, that "the leaves form the excretory organs of plants and trees, and whether the supply of food be great or small, a plant or tree cannot attain, nor sustain itself in, a perfect state of fructification until it is furnished with a surface of leaves duly proportioned to the sap supplied by the roots." This axiom is so good, so essential to a high state of culture, and so desirable to be borne in mind by the horticulturist, that he should adopt it as his motto. Ample foliage before the production of flowers is the desideratum: let the cultivator then, by the strictest observation, seek the best means of promoting it; he will generally find a vigorous growth adverse to the production of flowers, so long as such a state shall be sustained; but it will act conversely when it shall have reached its maximum; therefore, let him use his best endeavours to promote luxuriance until the plant shall have attained its standard of perfection; but if, during its progress there should be any disposition to dilate the incipient flower-bud let it be removed, and, if it be not in the nature of the plant to reproduce blossom-buds the same season, it will be better to lose a year than to have a premature and puny blossom; one plant well cultivated is worth any number badly grown. Some cultivators, in order to to effect a lofty growth, lop away all the under branches, so as to force the sap upwards. Better that the plant be allowed to follow, as far as may be, its natural habit, removing only such shoots as appear stunted or misplaced; this will give girth to the stem, and preserve a more perfect symmetry. I will here instance the Fuchsia. If the taller sorts be so treated, and regularly stripped of their flower-buds, until they have made their desired growth, they may be made to attain their greatest altitude with a pyramidal form, sustaining themselves without any support, their bottom branches sweeping the ground, the others rising branch over branch; when clothed with their bright, crimson, pendulous blossoms, they present a picture of floral beauty. Many are the plants that present a stunted or straggling appearance that, by like treatment, might be caused to assume the same symmetry. The Dahlia, too, might, I think, be much improved in the quality of its blossom, whether for the border or as a show flower, if, instead of the unsparing lopping away of its branches, these were carefully preserved, and the *blossom-buds* more fully displayed; this is

borne out by the Chrysanthemum and many other plants, from which, in order to produce fine blooms, we remove most of the flower-buds, while we scrupulously preserve every particle of foliage. I shall pass from this *Leviathan of flowers* to the more modest but equally well-known Mignonette. How to produce the tree is, I believe, generally understood; but as it will exemplify the subject, I will merely glance at the practise of depriving its leading shoot of its flower-bud; it is again surmounted by another shoot, from which the flower is again displaced; the same routine goes on till the plant has reached the prescribed height, when it is allowed to shoot freely, and is clothed with its fragrant bloom. By a very similar treatment, the *Verbenas* may be made either to spread with greater luxuriance on the ground, to trail over the vase, or to climb the trellis; for any of these purposes we have only to persevere in removing the flower-buds, from time to time as they are produced, and new shoots will be emitted, elongating to a considerable extent, at the same time multiplying in number so as to cover a much greater space. If these be allowed to fall negligently over a vase, or be carefully entwined round a trellis, attached to a flower-pot, the effect will be in either case exceedingly ornamental. The *Anagallis*, *Petunia*, *Heliotrope*, and various other plants, if subjected to a like training are capable of the same effect. The *Heliotrope* I once saw trained round a pillar in a greenhouse 12 feet high, clothed with flowers from nearly the bottom to the top. *Thunbergias*, *Maurandias*, *Rhodochitons*, and the whole race of dwarf climbers, will be much improved in growth by removing, as soon as visible, the early flower-buds. If the *Balsam* be allowed to *expand its first flush of flower-buds*, the blossoms will neither be so large or so double as they will if *the early buds be plucked off*. This will create a *more luxuriant development of the plant*, and the *succeeding buds* will be produced all over the plant in the greatest abundance, covering it with a profusion of double flowers, very superior to what would have been the effect if the plant had been allowed to expand its blossom while yet in its infant state. The *Schizanthus* and most annuals may be much improved by removing the first flower-buds. The cultivator will be amply repaid by sowing them (annuals) early in August, pinching off any flowers that may be produced the same year, and thus transferring them to the *biennial list*. *Lobelias*, particularly *Cardinalis*, *fulgens*, *ignea* and others of that section, by having the centre shoot pinched out, will produce a number of laterals, clothed with elegant flowers for nearly their whole length, instead of one long and almost flowerless stem. *Pentstemon gentianoides* and others, *Campanula pyramidalis*, and a variety of the like plants, are subject to the same remark. The *Erysimum Peroffskianum* is a striking instance of this treatment; if left to flower its centre shoot, although the novel color, under any treatment, renders it pretty, it will, nevertheless, have a straggling appearance; but let this be pinched out, and the consequent radiation of shoots will display a *dense patch of rich and dazzling flowers*. Many bulbs, as *Hyacinths*, *Tulips*, &c., after having

been grown in rooms, in glasses and flower-pots, are reduced to a state of great degeneracy; if these be planted in the free soil, and deprived of the languid flowers that will be produced the succeeding year, the bulbs will be invigorated, and thus prepared to flower well every alternate year, so long as this treatment be continued. To enumerate all the flowering plants that might be improved by a judicious removal of the early flower-buds would be a recapitulation of nearly the whole vocabulary of plants. Thus having redeemed my promise and responded to your invitation, I trust I have said enough to induce inquiry, and feel assured that investigation will lead to a more general practice of depriving plants of their premature flower-buds.

BIENNIAL AND ANNUAL STOCKS.

By MR. CHARLES WALKER, OF MANCHESTER

THESE flowers rank among the most lovely of our flower gardens, and are universal favourites; but by some they are not aristocratic enough to be generally placed, now-a-days, amongst our bedding plants. I am therefore induced to forward a few particulars on the history and cultivation, the family of Stocks,—hoping, by calling attention to the flower, to promote a more general interest in growing them.

The kind commonly called the Queen's Stock—gilliflower, in French *Giroflee des jardins* (Garden Stock) varies now to almost every colour. From white we go on to flesh, pink, scarlet, purple, red, and crimson, besides a variety that has *variegated* blossoms. The seed should be sown towards the end of May, and the best plan is to sow two in each small pot; keep the soil just moist, and if two plants are raised, as soon as properly established, pull (or cut) one of them out, and keep the plants in a somewhat shady place, so that you do not have them too vigorous that year. In the *cold parts* of our country shelter them in a frame during winter, and turn them into the open ground about the first week in March, giving attention to watering. The soil the seed should be sown in must be poor, to prevent them becoming too robust before winter; but when planted out, have about equal portions of old well-rotted dung and good fresh loam, added to the same quantity of the soil of your garden. Water at the roots freely during the spring and summer. They usually bloom from the beginning of May, and continue through the summer. A succession of young plants may be raised, and, by keeping some in a cooler place, their growth will be retarded, so that a stock in bloom up to November can be had. A sowing, of course, must be made every successive May, and thus provide for every following year's bloom. I have a plentiful supply of liquid manure, and once a-week I give my plants a good watering *at the roots*, after they are planted out in the open ground.

The Brompton Stock—in French, *giroflee a tige*—and the White Stock are varieties of this kind; the latter will sometimes live three or four years. This species is a native of the coast of Spain, Greece, Italy

Candia, and the Isles adjacent. It requires the same treatment as above. There is a noble stock, called the *Giant* and *Emperor*, which is of the *Biennial* section. I treat it too same as the Queen Stock, and Brompton's, and have grown it with a *spike of flowers* two feet six inches long, and the blossoms as large as a crown piece, and of a full double. There is too a most charming stock which is brought in pots, in bloom, to Covent-garden, in London, called the *Intermediate*, said to have been raised between the *Ten Week* and the *Giant*. It is a dwarfish grower, very branching and a profuse bloomer: the flowers of a bright rosy-red. I have had for several years a packet of seed sent as that variety, but it has not come true. I am told the London market gardeners will not allow seed to be disposed of. It is sown and treated as the biennial stocks are, and preserved in winter in frames near the glass.

The Stock-gilliflower has been long established in the English gardens, and is indeed a native of the cliffs by the sea-side. The old English name of Gilliflower, which is now almost lost in the prefix, Stock, is corrupted from the French *giroflier*. Chaucer writes it Gylofre, but, by associating it with the nutmeg and other spices, appears to mean the clove tree, which is, in fact, the proper signification of that word.

Turner calls it Gelover and Gelyfoure; Gerarde and Parkinson, Gilloflower. Thus, having wandered from its original orthography, it was corrupted into July-flower. Pinks and carnations have also the title of Gilliflower from smelling like the clove, for which the French name is *girofle*. For distinction, therefore, they were called Clove-gilliflowers, and these Stock-gilliflowers. Gerarde adds the names Castle-gilliflower, and Guernsey-violet.

The broad-leaved shrubby-stock is a native of the island of Madera; it blossoms from March to May. When the flowers first open, they are white, sometimes inclining to yellow; in a few days they become purple; hence this species has been termed *mutabilis*, or changeable. This is of quick growth, and may be increased by cuttings, taken as soon as the plant has done flowering: they should be housed in the winter.

Some persons increase the Queen's-stock in the same manner, planting the cuttings in March or April, in pots three or four inches wide; in the middle of May they remove them into pots five or six inches diameter, and in July or August into full-sized ones, that is, eight or ten inches; but though these cuttings will generally root, they do not make such handsome plants as those raised from seed; it is not, therefore, worth while to practice this method unless to preserve some fine double flowers. These flowers love the sun; but care must be taken to supply in the evening the moisture which has been exhausted during the day. It will be observed, too, as an invariable rule, always to place a plant in the shade when newly potted, and to let it remain there till rooted, for if once much flaged, they do not readily recover.

There are other species of stock, but the above are the most desirable. There is a Cheiranthus called the *C. quadrangulus*, a native of Siberia, which was introduced into the Paris garden by Jean Jacques Rousseau.

The flowers are a fine sulphur colour, and very sweet. It thrives in the open air, but does not last many years.

Garcilasso speaks of them as worn in the hair :

“ Loosely flow her golden locks;
If she stays them 'tis with jasmynes,
Chains them, 'tis with pinks and stocks.”

In this country ladies seldom adorn themselves with natural flowers. and yet we have many that would bloom through an evening very well. The introduction of such a fashion might be an important advantage to the fair sex : should the rooms be very warm, and like'y to injure the beauty of their floral ornaments, and cause them to droop prematurely, they would be compelled, like Cindrella in her fairy dress, to retire at a seasonable hour, before such a catastrophe should take place ; which would be of no small benefit to their health and beauty. In the east ladies commonly wear natural flowers. Thunberg speaks upon the subject with a gallantry quite enthusiastic :

“ The ladies in Batavia,” says he, “ wear neither caps nor hats ; but tie up their hair (which is only anointed with oil, and has no powder in it) in a large knot on the crown of their heads, and adorn it with jewels and wreaths of odoriferous flowers. In the evenings, when the ladies pay visits to each other, they are decorated in a particular manner about the head with a wreath of flowers, of the *Nyctanthes Sambac*, run upon a thread. These flowers are brought every day fresh to town for sale. The smell of them is inconceivably delightful, like that of orange and lemon flowers : the whole house is filled with the fragrant scent, enhancing, if possible, the charms of the ladies' company, and of the society of the fair sex.”

• THE ANNUAL, or as they usually called, the Ten Weeks' Stock,—French, *Le quarantain ; le violet d'été* (Summer Violet) ; Italian, *leucoio estivo* (Summer Stock). There are now an innumerable host of varieties, of almost every shade of colour, comprising both double and single blossomed. The addition of the German varieties has supplied a most valuable assortment, from white to yellow, scarlet, crimson, to almost black, and the quantity of bloom depends on the course of treatment : for the more vigorous the plants previous to blooming, the more flowers in proportion.

Seeds should be sown in shallow pans, or pots, in February or March, placing them where a little warmth is supplied, or in a gentle hot bed. When strong enough, put two plants into each small-sized sixty pot, or thumb pots, and place them where their growth can be promoted. The plants which are most likely to have *double blossoms* are usually *short, round*, and rather *bushy*, and the *single* ones are long and *thin*. They have a fine appearance, whether grown in patches in the mixed collection of a border of plants, or an entire bed of them. The soil in either must be rich with old rotten manure. I have used that of old cow dung, with the greatest success. A dry sub-soil is essential to their doing well ; if not naturally so, it must be

made dry by a few inches deep of brick or lime rubbish being laid at the bottom, upon which the rich compost is to be laid. In like manner should the place be prepared where patches are planted, if the sub-soil be a damp clay or something similar. The *Stocks* are rather like the *Wallflower*, will flourish much better on an old crumbling wall of a tower than in a strong wet soil.

ON DRYING AND PRESERVING SPECIMENS OF FLOWERS, &c.

BY A BOTANIST.

OBSERVING at the present season of the year that there are an abundance of floral specimens, and that information is requested by a correspondent on a successful mode of drying specimens, the following was given me by a friend, which for six years I have adopted with very satisfactory results, and forward it for insertion in the June Cabinet. "In selecting specimens for drying, care must be taken that they exhibit the usual character of the species; no imperfect or monstrous shoot should be made use of. If the leaves of different parts of the species vary, as is often the case in herbaceous plants, examples of both should be preserved. The twig should not be more woody than is unavoidable, because of its not lying compactly in the herbarium. If the flower grow from a very large woody part of the trunk as is often the case, as in some *Malpighias*, *Cynometra*, &c., then they should be preserved with a piece of the bark only adhering to them. It is also very important that ripe fruit should accompany the specimen. When the fruit is small, or thin, or capable of compression without injury, a second dried specimen may be added to that exhibiting the flowers; but when it is large and woody, it must be preserved separately. Next to a judicious selection of specimens, it is important to dry them in the best manner. For this purpose various methods have been proposed: some of the simplest and most practicable may be mentioned. If you are in a country where there is much sun heat, it is an excellent plan to place the specimen between the leaves of a sheet of paper, and pour as much dry sand or earth over it as will press every part flat; leave it in the full sunshine, and it will generally dry in a few hours. But in travelling, when conveniences of this kind cannot be had, and in wild uninhabited regions, it is better to have two or more pasteboards of the size of the paper in which your specimens are dried, and some stout cord or leather straps. Having gathered specimens until you are apprehensive of their shrivelling, fill each sheet of paper with as many as it will contain; and having thus formed a good stout bundle, place it between the pasteboards, and compress it with your cord or straps. In the evening, or at the first convenient opportunity, unstrap the package, take a fresh sheet of paper, and make it very dry and hot before the fire: into this sheet so heated, transfer the specimens in the first of the paper in your package; then dry that sheet, and shift into it the specimens lying in the second sheet, and so go on till all your specimens are

shifted; then strap up the package anew, and repeat the operation at every convenient opportunity till the plants are dry. They should then be transferred to fresh paper, tied up rather loosely, and laid by. Should the botanist be stationary, he may dry his paper in the sun; if the number of specimens for preparation is inconsiderable, put them between cushions, in a press resembling a napkin press, lying it in the sun, or before a hot fire. It is extremely important that specimens should be dried quickly, otherwise they are apt to become mouldy and rotten, or black, and to fall in pieces. Notwithstanding all the precautions that can be taken, some plants, such as Orchidææ, will fall in pieces in drying: when this is the case, the fragments are to be carefully preserved, in order to be put together when the specimen is finally glued down. In many cases, particularly those of Coniferæ, Ericæ, &c., the leaves may be prevented falling off by plunging the specimen, when newly gathered, for a minute into *boiling* water. The great object in drying a specimen is to preserve its colour, if possible, which is not often the case, and not to press it so flat as to crush any of the parts, because that renders it impossible subsequently to analyse them. When specimens have been thoroughly dried, they should be fastened by strong glue, not gum, nor paste, to half a sheet of good stout white paper: the place where they were found, or the person from whom they were obtained, should be written at the foot of each specimen, and the name at the lowest right hand corner. If any of the flowers or fruits, or seeds, be loose, they should be put into small paper cases, which may be glued in some convenient place to the paper. These cases are extremely useful; and fragments so preserved, being well adopted for subsequent analysis, will often prevent the specimen itself from being pulled in pieces. The best size for the paper appears, by experience, to be $10\frac{3}{4}$ inches by $16\frac{1}{2}$. Linnæus used a size resembling our foolscap, but it is much too small; and a few employ paper $11\frac{1}{2}$ inches by $18\frac{1}{2}$, but that is larger than is necessary, and much too expensive. In analysing dried specimens, the flowers or fruits should always be softened in boiling water; this renders all the parts pliable, and often restores them to their original position. In arranging specimens when thus prepared, every species of the same genus should be put into a wrapper, formed of a whole sheet of paper, and marked at the lower left corner with the name of the genus. The genera should then be put together, according to their natural orders. To preserve plants against the depredations of insects, by which, especially the little *Anobium castaneum*, they are apt to be much infested, it has been recommended to wash each specimen with a solution of corrosive sublimate, in camphorated spirits of wine; but, independently of this being a doubtful mode of preservation, it is expensive, and in large collections extremely troublesome. I have found that suspending little open bags filled with camphor, in the inside of the doors of my cabinets, is a far more simple and a most effectual protection. It is true that camphor will not drive away the larvæ that may be carried into the herbarium in fresh specimens; but the moment they become perfect insects, they quit the cases without leaving any eggs behind them."



FLORAL

OPERATIONS FOR THE MONTH

IN THE FLOWER GARDEN.

THE recent weather has been so variable, that it has been hazardous to attempt putting out bedding plants, but we hope danger from frost need not be apprehended, and as early as possible the planting should be completed; in many cases shading for a few days will be essential to success.

We have frequently called the attention of our young readers to the desirability of paying strict attention to the judicious arrangements of flowering plants, as regards height and harmony of colouring. It is true that, of late years, this subject has become a matter of study amongst gardeners, and great changes for the better have taken place in this respect; still we are far from supposing that we have arrived at perfection. Always bear in mind—if beauty, order, and effect are desired—that attention to this, next to a well laid-out flower garden, is essential to their full development. In producing well-arranged contrasts, the different shades of colour must be as distinct from each other as possible; for instance, white should never be placed in contact with yellow, or deep blue with crimson; but white forms a good contrast with blue or red, blue to orange, yellow to purple or violet, dark crimson to light blue, and scarlet should be placed near those which have a profuse green foliage, as red and green form the best contrast. Orange and violet do well. Greenish-yellow and rose contrast well.

Attention will now be required to water freely established plants, being careful it does not pass off, and in the *evening* sprinkle over-head newly-planted bedding plants, it tends to promote an early re-establishment. Pinks and Carnations will require due care in securing, and by the middle of the month pipings of Pinks may be taken off, and towards the end layers of some early Carnations be made. Thin away extra flower-buds. Dahlias,—*thin out the shoots*, so as only to retain about four or five. Stop the leading stem, to give support to the side ones. Cuttings will soon strike root. If the weather be dry, water daily, a good supply at once: a portion of mulchy manure, spread over the roots, is very beneficial. Seeds of Sweet Williams, Canterbury Bells, Scabious, &c., should now be sown for next year's blooming. Auricula and Polyanthus must be kept in a shady but airy place. Prepare the compost for re-potting in next month, and sow seed as soon as ripe: also Pansy seed.

New Flowers.—Let attention be given to hybridizing, with a view to obtain improved varieties. Roses: maggots often infest the buds, carefully examine, and destroy. Green-fly, too, stop at first by fumigation, &c. Chrysanthemums: young plants should be prepared. Violets for next year's blooming, attend to beds of, &c. Put off cuttings of Pansies.

IN THE GREENHOUSE, ETC.

The greenhouse plants may now be placed out of doors; let them be duly watered, for if allowed to flag the result is the leaves are damaged. Moss sprinkled between the pots keeps the soil cool.

The house will now have to be kept gay and sweet by Balsams, Globe Amaryllis, Cockscombs, Brachycoma, &c. Re-pot as required, to keep the plants in a growing state. Achimenes will now be coming into bloom; they require for every attention. Cuttings of nearly all greenhouse plants should now be put off; May and June are the best months for that purpose. Cinerarias are highly

ornamental, and well worth encouraging. Any done blooming and seed collected, if required, should be turned out of the pots entire into a bed of rich soil, where there is shade from eleven to four o'clock. There they will flourish, and supply an increase for next year's bloom. Cuttings of Roses may be put in, and will soon strike. Camellias that have been forwarded by forcing the shoots and buds, should now be placed in a cooler situation, to give vigour to them. When the foliage of Ranunculus or Tulips is quite dead, the roots may be taken up. Pelargoniums, as they go out of bloom, must be prepared for another season.

ERICAS.—The early-blooming kinds should be draughted out, and others may follow them as fast as they go out of bloom. Examine the plants very carefully, and see that they are in a proper state as to moisture; and if you are an exhibitor, never put a plant of this or any other kind into a van, without previously giving it a good soaking of water. The young plants which are not blooming had best be placed in a pit where they can be exposed or not, as may appear necessary. Stop such as require it boldly back, and train them so as to form a proper foundation for a good specimen. As the principal specimens go out of bloom they may be removed to a shady situation to make their growth, being previously cut in, if necessary. Supports for an awning must be placed over them, so that in case of heavy storms or continued rain, they can be protected a little. Clear weak manure water may be used occasionally for the free-growing kinds. With regard to ventilation, there is no fear of your over-doing it after this time. Re-pot any requiring it, but do not over-pot; the one-shit system is injurious to nearly all the tribe, the only exceptions are those of rapid growth and robust habit. Rough peat and silver sand, with bits of stone, &c., and a liberal drainage are requisite. Epacris, &c., should also be duly attended to in re-potting, &c.

AZALEAS in the forcing pit must be kept shaded during bright sunshine, and a moist growing atmosphere must be maintained around them. Water freely with weak guano-water, and sprinkle the vacant parts of the house or pit daily, but not upon the bloom. As the plants go out of flower, place them in heat, to perfect their wood for next year's blooming. Camellias promote the well ripening of the wood, before fully exposing them to the open air. The supply of next season's bloom depends on *this attention now*.

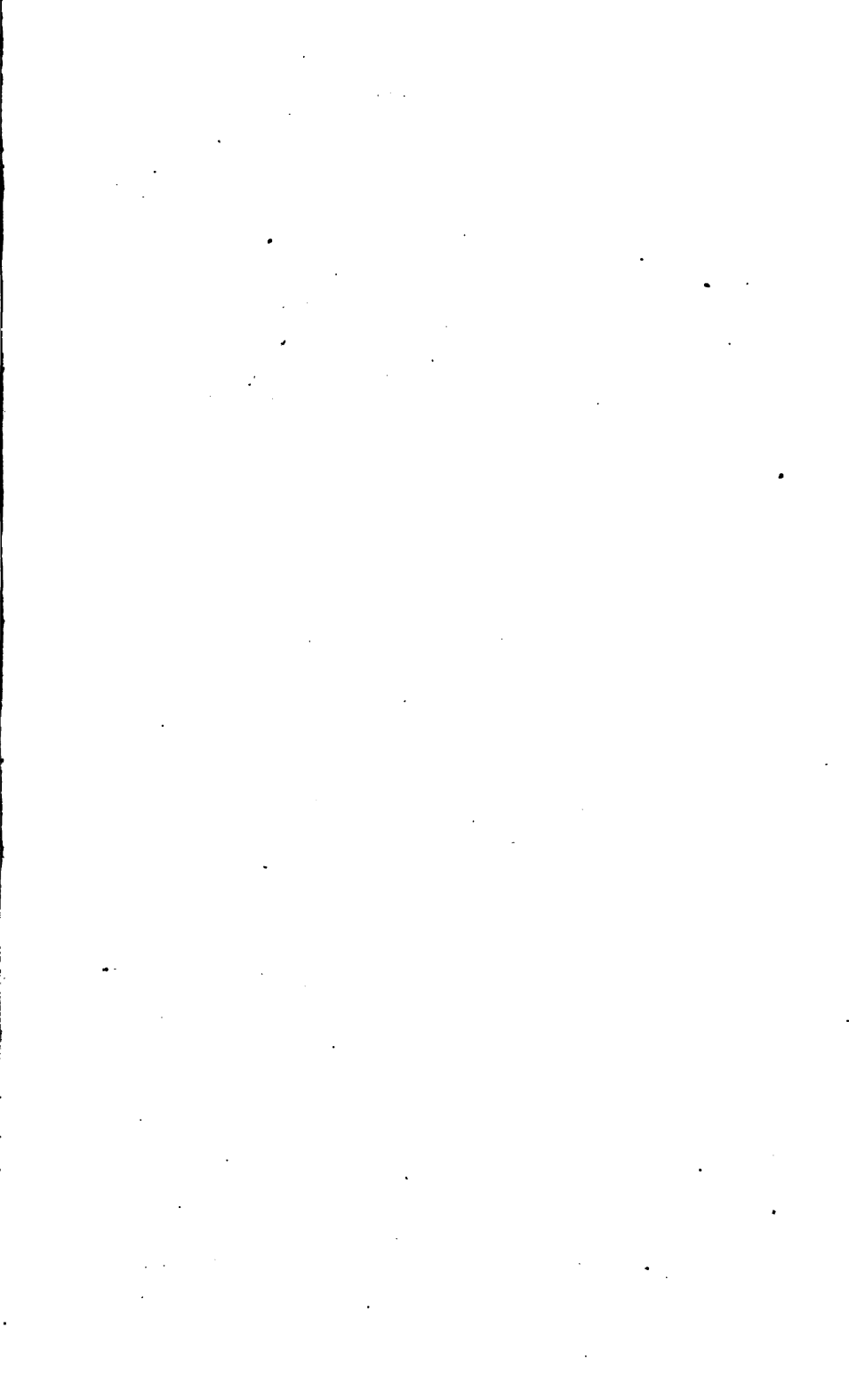
THE PERPETUAL OR TREE CARNATION.

The appearance of a few plants of this charming flower at the exhibition of the Horticultural Society at Chiswick on Saturday last, reminds me that a few remarks respecting it at this season may possibly prove useful. This variety is commonly called the Winter-flowering Carnation, from the desirable characteristic it possesses of blooming throughout that season. The name of Tree Carnation may be familiar to some, as the plant itself is not of recent introduction, although very few varieties seem originally to have been known, and those have now been entirely superseded by sorts lately imported; for it is our continental neighbours who have been so successful in raising them, and to whom we are principally indebted for these invaluable acquisitions; for not only are the varieties now more diversified in colour, but their growth and habit are altogether improved. In addition to their bright and varied colours, they are deliciously fragrant, a desideratum which cannot be too highly appreciated, some of the varieties being equal in perfume to the common Clove. Persons desirous of cultivating this tribe of Carnation should procure nice young plants, say in March, and keep them in a cool frame until the weather permits them to be exposed entirely to the open air; but even in spring the lights should be taken off whenever it is practicable. Those who have old plants should strike cuttings about the middle of March, as young plants grow rapidly throughout the summer, and make by far the best specimens for winter blooming. Before taking cuttings, the plants should be put into a warm house, or one that is kept rather close; and those who have not this convenience should put them in the warmest part of the greenhouse; if this is done, the plants are excited to grow, and if the cuttings are then taken off, they will strike root more readily. Care should be taken to strike only from vigorous plants, and to select strong and healthy cut-

tings; for if this is not done, and the cuttings are taken from delicate and cankerous plants, the colours of some of the varieties are inclined to run, besides which, the plants always maintain a sickly appearance. Tree Carnations will supply an abundance of cuttings, as most of the varieties continually throw out a profusion of laterals, which can be taken off at any season without injury to the parent plant; indeed, taking a few of them off in autumn has rather a tendency to strengthen the flowering shoots than otherwise. To insure cuttings taking root, either late in autumn or in spring, they must be struck in a little heat, but the cutting pots should not be covered with a glass, for if this is done, the cuttings will fog or damp off; besides which it is not necessary; and if no glass be used, they will want occasionally looking over, and any grass carefully removed that is likely to create damp. After the cuttings are well rooted they should be potted singly into, say, 4-inch pots, and kept in a rather close and moist atmosphere until fully established, when they should be gradually hardened off in a cool frame. At this stage the tops may be pinched out, which will greatly assist the formation of nice plants. To those who have not the convenience of supplying warmth for striking cuttings during winter, I should recommend their being struck at the latter end of summer, to be potted off and kept in a cool frame during the winter, care being taken to keep them rather dry—a rule which should always be observed in wintering Carnations. The cutting pots should be prepared by first giving a good drainage of any sherds of a porous nature, then a few rough pieces of turfy loam to prevent the soil from being carried through the sherds; after this, take equal proportions of loam and silver sand, mix together, and fill until within a quarter of an inch of the rim, then complete by filling up with silver sand. Tree Carnations will thrive luxuriantly in a good maiden soil or loam mixed with a little silver sand, to which may be added a slight sprinkling of leaf-mould; the same soil may be used throughout the season, except when the plants are first shifted from the store pot, when a little more silver sand should be used. In spring the plants should be removed from the frame, and placed upon an open border, in any favourable situation; but first prepare it by spreading a thin layer of ashes, which will prevent worms from entering the pots. If at this time the plants require potting, a shift should be given them, but care must be taken not to over-pot them. I find that many varieties thrive better if gradually shifted into their blooming pots, say first from 3-inch into a 6-inch pot, and so on in proportion. The plants are comparatively no trouble during summer; they merely want watering, and sometimes stirring up the surface soil; but as they grow, care must be taken to secure the stems nicely with some neat sticks. The principal insects that attack them are green fly, which is easily removed by sprinkling with a little tobacco-water. If the weather and situation prove excessively hot in the summer, the plants may be removed with advantage to a border that is slightly shaded from the mid-day sun. If the above mode of treatment is followed, by the autumn the plants will have thrown up from three to eight stems each, and be laden with a profusion of buds, which, if the plants are removed to a greenhouse as soon as the weather is beginning to get damp and cold, will expand, and afford a continuance of blossoms throughout the winter. These Carnations are not only valuable for their display in the greenhouse, but are, I may say, unequalled as a winter flower for the bouquet and other purposes to which cut flowers are applied.—W. B. *Gardener's Chronicle*.

ON FORCING ROSES.—It is generally asserted that Roses do not succeed, if forced, two years successively. This I find from practical experience to be an erroneous opinion, as I have forced the same plants five consecutive seasons. They have been treated as any other potted plant would be, namely, shifted as they increased in size; and this year they have bloomed more profusely than they did the first season: in fact, they have annually improved in the number and beauty of their blossoms. My collection consists of Moss, Spongy, Cabbage, Unique, Wellington (Hybrid China), Crimson Perpetual, and Smith's Yellow Noisette, which succeeds much better as a forced than as a garden Rose. I am induced to mention these circumstances respecting forced Roses, from the failure which I perceive in that department in many gardens where there is every facility for procuring them; and there is no flower so highly appreciated, even by non-amateurs, as a forced Rose.

ROSA.









1. *Gum magnificum*
2. *Papaver nudicaule aurantia*



JULY, 1854.

"'Tis sweet to muse upon His skill display'd
(Infinite skill) in all that He hath made!
To trace in Nature's most minute design
The signature and stamp of power Divine;
To wonder at a thousand insect forms,
These hatch'd and those resuscitated worms—
New life ordain'd and brighter scenes to share,
Once prone on earth, now buoyant upon air."—COWPER.

"Oh, come to the river's rim, come to us (flowers) there,
For the white water-lily is wondrous fair;
The swan among flowers! how stately ride
Her snow-white leaves on the rippling tide!
And the dragon-fly gallantly stays to sip
A kiss of dew from her goblet's lip—
Oh, come in the glow
Of the long summer's day,
When the cool waves flow
And the zephyrs play.
Oh, dwell not in cities, mid dark and care,
But come to the river's rim, come to us there!"

ILLUSTRATIONS.

GEUM MAGNIFICUM,

PAPAYER NUDICAULE-AURANTIA.

GEUM MAGNIFICUM.—This is a splendid variety of *G. chiloense*, and is very much superior to a previous variety, raised from the same species, and named *G. coccineum*. The present one is a hardy perennial herbaceous plant, blooming in profusion, the flowering stems rising from a foot to eighteen inches high. The flowers being large, and of such an intense colour, produce a brilliant appearance, and render the plant deserving a place in every flower garden, where it would be one of its most superb summer ornaments. It belongs to the same natural order as the *Potentillas*, but is a much more compact and neat plant than any of that genus we are acquainted with.

PAPAYER NUDICAULE, AURANTIA.—This *very handsome variety* of Poppy is a hardy herbaceous *perennial*, the flowering stems rising a foot high, and blooming *very freely*. It forms a neat bushy plant, and deserves a place in every flower garden. Its *very neat shaped* blossoms, of a brilliant orange colour, render it very attractive, and one of the prettiest flower garden *summer ornaments*, of its size.

NOTES ON NEW OR RARE PLANTS.

DRACENA ELLIPTICA; VARIETY MACULATA.—It is a stove plant from the East Indies. The leaves vary in size from three to nine inches long, *leathery*, elliptic shaped, of a deep green, beautifully spotted with yellow dots. The flowers are produced in terminal branching panicles, of a yellow-green colour. Each blossom about an inch across, having six narrow petals. Its spotted leaves render it a pretty acquisition. It recently bloomed in the Royal Gardens at Kew. The plant is also in Mr. Van Houtte's establishment. (Figured in *Bot. Mag.*, 4787.)

CÆLOGYNE TESTACEA. CLAY COLOURED.—A native of Singapore, obtained by Messrs. Loddiges, in whose collection of stove orchids it has been some years. The flowers are produced in drooping racemes of six to eight blossoms in each. They are of a dull clayey-white colour, with the *lip* spotted with brown. (Figured in *Bot. Mag.*, 4785.)

CEREUS MACDONALDIE.—This very noble flowering plant was sent from Honduras to the Royal Gardens at Kew, by Mrs. Macdonald. The flowers, when fully open, are about ten inches across. The long outside sepals are of a rich orange colour. The *petals* are broad, white, and the centre handsomely ornamented with orange-coloured stigma and anthers. It merits a place in every stove. (Figured in *Flore des Serras*, 896.)

HEXACENTRIS MYSORENSIS; VARIETY LUTEA.—A plant of this superb flowering variety was recently exhibited at Chiswick, by Messrs. Veitch. It is a *climbing shrub*, having large leaves, and its large rich blossoms are produced in terminal drooping racemes. Each blossom has four broad lobed divisions, and the flower is three inches across. Many of our readers have seen the fine species *H. coccinea* in bloom, and deservedly admired the beauty of its flowers; but this *yellow* variety far exceeds them in size, brightness of colour, and in the number of blossoms borne by each raceme. (Figured in *Bot. Mag.*, 4786.)

ILEX CORNUTA.—This magnificent species was introduced into England from China, by Mr. Fortune. The leaves are five inches long, and the end of each has three long horn-like spines. The berries are very large, of brilliant red colour. (Figured in *Flore des Serras*, 893.)

SCUTTELLARIA VILLOSA.—A stove plant from Peru. The flowers are of a brilliant scarlet, tube-shaped, one inch long, produced in a terminal raceme, forming almost a *corymbose* head of twenty or more blossoms. They are produced numerously. The leaves are green, with the underside of a rich purple. Very handsome. (Figured in *Bot. Mag.*, 4789.)

FRANCISCEA EXIMIA.—It was discovered in the neighbourhood of Villa Franca, in Brazil, by M. Libon, and was introduced to Brussels by M. de Jonghe. It is an erect growing branchy stove shrub, which blooms very freely in the early part of the year; but if plants be rested, and introduced into heat at various periods, some may be had in bloom all the year. The flowers are of a beautiful violet-purple colour at first, but fade so as to become white. Each blossom is as large as a penny-piece, and being borne in profusion, are very showy. In winter and spring it is a charming ornament. (Figured in *Bot. Mag.*, 4790.)

RHODODENDRON CINNABARINUM; VARIETY PALLIDUM.—Another of the Sikkim-Himalayan plants, which has bloomed in the Royal Gardens at Kew. The following remarks are made in the "Botanical Magazine," where a figure of it was given in the June number:—"Now we have in cultivation in the Royal Gardens at Kew what Dr. Hooker considers a third variety, with leaves, in shape resembling those of the original type of *R. cinnabarinum*, but pale coloured beneath, with a calix resembling that of the *R. Roylei*, and corollas paler than either of the other varieties, and having the faux above sprinkled with dark blood-coloured dots. The flowers are produced in terminal cymes, of a full rose colour, between funnel and bell shaped. Each blossom is about an inch and a half across. (Figured in *Bot. Mag.*, 4788.)

BRILLANTIA OEWARIENSIS. A *Salvia*-like plant, having large heart-shaped leaves, and the flowers are produced in terminal panicles of twenty or more blossoms on each. The flowers have a rosy purple tube, with the lower spreading portion of the Labium a rich violet-blue. It bloomed first, in this country, at the Chelsea Botanic Garden. It is a native of Sierre Leone, and requires similar treatment to the *Salvia fulgens*, and others of that character.

GESNERIA DONCKELAARIANA. In a previous number we noticed this fine plant. We are informed that it originated in the Botanic Garden at Gand, and was considered by the Director (M. Donckelaar) to be an hybrid, produced between *Gesneria discolor* and the *Ligeria rubra*. (Form of *Gloxinia speciosa*.) Other persons suppose it to be a distinct species which had been introduced along with other Gesnerias, and been sent under the name of some other previously known species, but proved to be the fine flowering plant it is. The leaves are very large, heart shaped, green above and purple beneath. The flowers are produced in a large terminal panicle, and each blossom of a well-formed Gloxinia shape, tubular portion an inch and a half long, and the front of the blossom (limb) an inch and a half across. The inside of the flower is white; the floral stems are of crimson red colour. It merits a place in every stove. (Figured in *Flores des Serres*, 902.)

BEGONIA ZANTHINA. The leaves are very large, eight inches or upwards across, of a dark green above and light red beneath. The flowers are of a bright golden yellow colour; very handsome. It merits a place in every stove.

BEGONIA ZANTHINA GANDAVENSIS. The flowers are yellow, and the leaves particularly handsome. The upper side a very deep green,

richly tinged with maroon, and underneath a deep purple. It is a superb variety.

BEGONIA ZANTHINA MARMOREA. The plant is of robust habit, with fine velvet green foliage; most beautifully marbled with *varnished silvery white*, equally as handsome as the leaves of *Cissus discolor*. This very handsome variety had the premier prize awarded for it at the Grand Exhibition, held in May, at Paris, and at Mons, on June 4th of the present year. The above handsome varieties are in M. Van Houtte's collection, and plants may now be obtained.

Plants in bloom in the Royal Gardens at Kew.

SCHEERIA MEXICANA. (Synonyme *Achimenes Chirita*.) This is a charming plant. It is branchy, growing from half a yard to two feet high, and blooming profusely. The flowers are in form like those of the neatest *Gloxinia*, and each about three inches across the front of it, of a rich violet purple, with a white throat. It merits a place in every stove.

ACHIMENES LONGIFLORA MAJOR. The flowers are of similar form to those of *A. longiflora*, but one-half larger, being three inches and a half across, and of a lighter blue colour. It is exceedingly showy, and ought to be grown in every collection of this fine flowering genus.

HOYA BELLA. A plant was trained round a trellis composed of six sticks, inserted at equal distances inside a 48 sized pot, and around this the plant was coiled, which had a number of its very handsome waxy white heads of flowers, and produced a pretty effect.

GLOXINIA IMPERIALIS. The outside of the flower is a French white. The mouth has a rim of bright blue, and farther on, inside the tubular portion, it is of a dark velvet colour.

Geranium sanguineum Lancastriense. A hardy border plant, of prostrate habit, blooming very freely, and the flowers of a beautiful flesh colour. It contrasts prettily with the purplish red of the *G. sanguineum*, and blooms all the summer.

Datura cornigera. This species is of medium habit, and from two to five feet high; form branchy, somewhat *bushy* plants, which bloom very freely. The flowers are in form similar to those of *D. arborea* (*Brugmansia suaveolens*), drooping, white, about six inches long. It flourishes in the green-house, or open ground in summer.

Gloxinia Prince de Ligne. Outside of flower a fine rosy red, inside deep maroon; with a rim of bright crimson round the throat, and blossom very large.

Gloxinia Gay Lussac. White, with a primrose stripe inside the tube, edged with carmine; very neat.

Gloxinia Albert Courtier. Outside lilac, inside a dark velvet. Flower very large and superb.

Gloxinia Madame Chartin. White, with a yellow stripe up inside, edged with rosy red; very neat.

Gloxinia marginata. White outside, inside blue, with a white rim round the front of the flower. It is of thick substance and fine form.

HARDY HERBACEOUS PLANTS.—*Dodecatheon media elegans*. The flower stems rise half a yard high, each bearing a terminal head of from twenty to thirty blossoms, of a fine rosy purple, with a yellow centre, and very handsome.

Geum chilense. Flowers bright scarlet, one inch across—pretty.

Potentilla argyrostigma insignis. The flower stems rise eighteen inches high, blooms in profusion, each blossom one inch across, white, handsome cup-shaped—very pretty; forms a nice contrast with the brilliant coloured kinds.

P. Ruthenica. The plant spreads so as to form a dense bush of foliage, six inches high. The flower stems are a foot high; it blooms in profusion, each blossom nearly an inch across, of a deep yellow, and very pretty.

P. intermedia. It spreads like the last described, and the foliage at the outer edge of the bush forms an exact circle. The flowers are borne in vast profusion, bright yellow; very neat and pretty.

Galega orientalis. Grows three feet high, neat plant, blooms freely, in spikes of six inches long; the flowers are blue; pretty.

Silene maritima. A prostrate, spreading, bushy plant. Each flower one inch across, white, with black anthers, in profusion; neat and pretty.

Nepeta Massinæ. A spreading bushy plant, the very long spikes of lilac-coloured flowers rise to a foot high. It blooms in profusion, and pretty.

Lathyrus rotundifolius. Now three feet high, in very profuse bloom. Its pretty pea flowers are of a rosy purple, with a deep crimson keel.

Cerastium tomentosum. This is an old inhabitant, introduced in 1648. Many of our readers know it; its silvery white prostrate spreading stems and leaves, with its snowy-white starry flowers are familiar to them. When grown as well, at Kew, with its profuse mass of flowers, it is exceedingly neat.

Iberis tenoreana. This candy tuft-like perennial species forms a neat evergreen bushy plant, about nine inches high, blooming profusely. The flowers are white, tinged with lilac; very neat and pretty.

Aquilegia fragrans. This fragrant columbine grows two feet high; its flowers are large, white with the outside tinged with lilac; very pretty.

Statice maritima-rosea. A handsome thrift, the flower stems one foot high, with a large globular head of very bright rose-coloured flowers; exceedingly pretty.

Campanula Barclayana. Grows two feet high, a neat bushy plant, having narrow foliage, and blooming in vast profusion. The bell-shaped flowers are drooping, similar to the common wild campanula of our country, each blossom an inch long, and the same across the mouth; a beautiful violet-blue. It merits a place in every garden.

C. Sarmatica. It grows two feet high, and has numerous floral stems, each terminating in a long spike of lavender-coloured flowers; each blossom is two inches and a half long and two across, borne in profusion.

C. latifolia. A robust compact plant, growing three to four feet high, each of its numerous stems having about two feet long adorned with large bell-shaped flowers, each blossom being two and a half inches long and as much across, of a fine purple-blue colour; very fine.

C. Macrantha. Similar in stature to the last species, each bell-formed blossom three inches long, a violet-blue colour; very pretty.

Geum intermedium. Grows eighteen inches high, and blooms profusely; each blossom is cup shaped, an inch and a half across, of a rich golden-yellow colour; very pretty.

Delphinium Wheelerii. The principal stems rise four feet high; one-half the length is composed of numerous spikes, densely furnished, of azure-blue flowers. It is exceedingly fine; no other species or variety we have seen have near so many blossoms. It merits a place in every garden.

Orobis lathyroides. A neat plant, eighteen inches high, bushy, blooming in profusion. The pea-like flowers are borne in racemes of twenty or more in each, of a pretty lilac-blue; neat and handsome.

Veronica latifolia. A neat bushy plant, two feet high, pushing forth numerous flower stems, and each stem terminates with four spikes (six inches long), of ultramarine blue flowers. It is exceedingly showy and neat, well meriting a place in every flower garden.

Veronica austriaca. A neat bushy plant, one foot high, having numerous flower stems, bearing a profusion of flowers, which are borne in spikes, bright blue with a white eye; very neat and pretty.

Potentilla reptans. A creeping plant, growing rapidly, and blooming profusely; the flower stems rise about four inches high; the blossoms are of a bright yellow, double, an inch across; very neat and pretty.

Campanula persicifolia-maxima. A neat growing plant, three feet high, pushing forth numerous stems. Half a yard of each is adorned with very large rich bright blue flowers; each blossom, broad bell-shaped, is about three inches across. It is a very superb variety.

REMARKS ON THE SLEEP OF PLANTS.

BY MR. PETER MAKENZIE, OF WEST PLEAN, STIRLING, N.B.

I READ with pleasure the interesting article headed "Observations upon the Sleep of Plants." This is a subject which has engaged the attention of the learned and unlearned, less or more, for many years; and although the causes of the phenomena may still remain a secret, something useful may yet be obtained when the study of the subject is closely pursued. In Professor Balfour's "Manual of Botany," it is said to be of importance, both as regards meteorology and botanical geography, that observations should be made carefully on what are called the annual and diurnal periods of plant, the former being the space of time computed between two successive returns of the leaves, the flowers, and the fruits; and the latter the return of the hour of the day at which certain species of flowers open. The same species should be selected in different localities, and care should be taken that

the plants are such as have determinate periods of flowering. Rules as to the mode of observing periodical phenomena in plants have been drawn up by the British Association, and a committee has been appointed to carry this into effect. The committee has published—First, a list of plants to be observed for the period of foliation and defoliation. Second, a list of plants to be noticed for flowering and ripening of the fruit. Third, a list of plants to be observed at the vernal and autumnal equinoxes and summer solstice, for the hours of opening and closing their flowers. I am not aware whether the observations of the committee have been made public or not, neither do I know whether a watch of Flora has been constructed in any part of Britain; but perhaps the following, by Litmnæus for Upsal, and Decandolle for Paris, may be interesting to some :—

Name of Plant.	Upsal.	Paris.
<i>Convolvulus nil</i> , and <i>sepium</i>		2— 4 a.m.
<i>Tragopogon pratense</i>	3— 5 a.m.	4— 5 a.m.
Other <i>eichoraceous</i> plants	4— 5 a.m.	4— 5 a.m.
<i>Matricaria suaveolens</i>		4— 5 a.m.
<i>Crepis tectorum</i>	4— 5 a.m.	
<i>Papaver nudicaule</i>	5 a.m.	5 a.m.
<i>Momordica elaterium</i>		5— 6 a.m.
<i>Lapsana communis</i>	5— 6 a.m.	5— 6 a.m.
<i>Hypocharis maculata</i>	6 a.m.	6 a.m.
<i>Sonchus</i> , different species	6— 7 a.m.	6— 7 a.m.
<i>Nuphar</i> and <i>Nymphaea</i>	7 a.m.	7 a.m.
<i>Calendula pluvialis</i>	7 a.m.	7 a.m.
<i>Anagallis arvensis</i>	8 a.m.	8 a.m.
<i>Dianthus prolix</i>	8 a.m.	
<i>Nolana prostrata</i>		8— 9 a.m.
<i>Hieracium chondrifoloides</i>	9 a.m.	
<i>Arenaria</i>	9—10 a.m.	
<i>Mesembryanthemum crystallinum</i>	9—10 a.m.	9—10 a.m.
<i>Portulaca sativa</i>		11 a.m.
Most <i>ficoideous</i> plants		12 a.m.
<i>Scilla pomeridiana</i>		2— p.m.
<i>Mirabilis jalapa</i>	5 p.m.	6— 7 p.m.
<i>Cereus grandiflorus</i>	9—10 p.m.	7— 8 p.m.
<i>Convolvulus purpureus</i>		10 p.m.

The flowers of the Chinese tree peony appear to be under the same influence as many other flowers. I put in a plant of it, upwards of twenty years ago, when it was about a foot high; it is now between six and seven feet high, and ten feet in diameter, with upwards of one hundred and fifty blossoms and flower-buds upon it. Some of the flowers will measure nearly a foot across when the sun is bright; again, in dull weather they contract, and will scarcely measure six inches across.

We are told by those who have studied the subject, that the expansions and closings of flowers are regulated by light and moisture, and also

by a certain law of periodicity. A plant accustomed to flower in daylight at a certain time, will continue to expand its flowers at the wonted period, even when kept in a dark room. Decandolle made a series of experiments on the flowering of plants kept in darkness, and in a cellar lighted by lamps. He found that the law of periodicity continued to operate for a considerable time; and that in artificial light some flowers opened, while others, such as species of *convolvulus*, still followed the clock hours in their opening and closing.

THE EUPHORBIA JACQUINIFLORA.

BY MR. WILLIAM MASON, GARDENER, ELAM HALL, LEEDS.

I NOTICE the frequent recommendations of this very pretty flowering plant, and, aware that it requires particular attention to prevent it becoming weakly and a long straggling subject, I forward a few hints of the plan to be pursued, so as to have nice *bushy* plants, and to have an *abundant* bloom. The latter will not be realised unless the young wood be *well ripened*.

It will flourish in the following compost:—turfy loam and turfy peat—having been obtained and laid in a heap for several months—and well-rotted leaf mould, in equal parts, to which give a good sprinkling of white sand and bits of charcoal, or broken pot; also have a liberal drainage.

After blooming, the plants must be placed in a warm *greenhouse*, and allow the soil to become gradually dry; soon after, whilst in this dormant state, cut back the branches. When the buds *begin* to push forth for new shoots, re-pot the plants, carefully reducing the ball of earth, &c. After potting, place them in a plant stove, or hot-bed frame, where *the roots* will be warm, which will promote a vigorous growth of new wood; but if the plant has only *top* heat, the shoots are more weakly in proportion. When the young shoots are about five or six inches long, tie their ends in a bending form, in order to check the sap and to strengthen the lower part of each shoot. In a fortnight or three weeks' time, pinch off the end of all such, and promote the well maturing of the wood left. Do not *stop* any shoots after July, but all shoots that appear before this time must be stopped, as often as they get so long; but, by the end of September, place the plants in the greenhouse, lessen the supply of water, so as to be in a dryish state, and, early in November, remove to the stove, and a profusion of bloom will soon push forth; and, by having a few plants to bring in at following times, a succession of bloom through winter, spring, and early summer, may be obtained. It is one of the most lovely blooming plants we have. It requires frequent syringing overhead, and particularly at the underside of the leaves, to keep it free from the attacks of the red spider; and, to have *bushy* plants, attend to the bending and stopping of the shoots.

THE BEAUTY OF OUR NATIVE WILD FLOWERS.

BY SENEX.

FLOWERS, of all the works of the Almighty Creator, are the sweetest; they are all most beautiful. Cold and insensible indeed must be the heart that loves them not. But it is the wild flowers of the hedge and the field that I would make a few observations on. Those plants indigenous to Great Britain are a most interesting race, a few species of which have come under cultivation, and seldom have they failed to produce new beauties for the admirers of Flora. There is the little *Bellis perennis*, parent of numerous pretty varieties, and still capable of further improvement. And the *Viola tricolor*, with its endless attractive genus; the Pansy alone has made many a florist rejoice to see his little seedling expand and discover to him a variety distinct from any others. And the parents of these are not more elegant than many other species—I may name the *Veronica*, *Campanula*, &c.; for though the botanist may have them recorded, and may possess specimens of them, yet until the florist renders them *domesticated*, their real nature and quality are virtually unknown. Search, then, the forest and the field, for I am persuaded with the poet, that

“Many a flower is born to blush unseen,
And waste its fragrance on the desert air”—

for even entirely new species may be found; but those already known would suffice, and many of them, under attentive management, might bid fair to rival even the Pansy in the floral world: and it is a matter of great congratulation that many societies are endeavouring to promote the discovery of new species, by awarding premiums for collections, single specimens, &c. If they were likewise to encourage the cultivation of known species merely for the production of new varieties, or with a view of getting some given species in the highest state of perfection, they would be serving equally the purpose for which such societies are established. And even should an amateur florist transplant some of the most beautiful indigenous tribes into his own garden, and treat them with care and attention, I venture to predict success to his undertaking. For my own part, I have (this spring) devoted a piece of ground to their culture, and tried the different effects of various soils on each of them; and should the result be in any way serviceable, I shall have great pleasure in communicating it. Are the race of wild flowers to be cast away, however beautiful, because they are natives of our own country? It seems so; for do we not see any puny exotic extolled to the skies, while the more splendid hedgeflower is left neglected in its native place? Let the exotic flower in the artificial climate of the stove or greenhouse, and I admire them; but more, much more do I admire those flowers to which are linked a train of sweet recollections of childhood's days, when we roved over the green fields among cowslips, butter-cups, and daisies. But some will say this is prejudice;

if the exotic is to remain in its own place with only a share of attention, why not confine the wild flower to its wilderness? but I would not have you make a field or a hedge-row of your gardens; I would only have experiments tried aiming at advantage to floriculture and the general good.

SEEDLING ORANGE TREES.

BY A DEVONIAN GARDENER.

THE collections of Orange trees in this country of the large-growing section is very far from proving as successful, as I am confident, may be realised. I speak from the fact of what I have often seen exhibited with the same kinds of trees in their natural climates. During the last twelve years I have turned my attention to forming and cultivating a collection in Devonshire, and grow them in a light-house, glazed (now) with Hartley's rough sheet-glass, and the best results have been obtained. I observe that Orange trees in general, either grafted or budded, come *sooner* to a bearing state, but are never such healthy trees as seedlings. I find I can bring a seedling Orange tree into bearing in six years. I have observed the young seedling trees to put out thorns at the base of the leaf; and so long as these appear on the young wood no fruit can be looked for. As the tree is in a luxuriant state, my method to stop that vigorous growth is this:—Mix half strong brown loam, half peat or heath earth, mixed well together, with a little gravel, to keep the soil from binding to the roots; have pots proportionable to the size of the tree, put them into this soil, which I consider rather poor, but keeps them in good health, and in humble growth; by this management they come sooner to a bearing state. I keep them in that soil till I see blossom appearing, which may be looked for when no thorns push out of the young wood; after that I give them larger pots, then take compost half strong brown loam, half vegetable mould, break some bones small, mix some in the compost, and put some in the bottom of the pots, which feeds the roots a great length of time, and drains off superabundant water. After the fruit is set, I have observed the decaying flowers to be in a corrupt state at the base of the fruit, and cause it to drop off; when the fruit is set, I take all the decaying flowers carefully off. In pruning Orange trees, great care must be taken not to shorten any young wood, as the flower generally appears at the extremity, only cutting out any cross useless wood. I have known some hew down their Orange trees every year. By this treatment it is impossible for their trees to bear fruit, for in spring they bring forth strong thorny wood, and are no nearer bearing than when one year old. The brown scale is very troublesome to Orange trees and retards their growth, and makes them have a sickly unhealthy look; if the trees are not kept clean of that insect, little good can be expected where they are. I keep my trees perfectly clear of that insect with three dressings

in one year, by taking soft soap half a pound, flour of sulphur a quarter of a pound, nux vomica half an ounce, add to these six quarts of hot water, keep stirring till the soap is dissolved; when cold, take a sponge and wash every leaf on the upper and under sides; three days after I find the insects all dead. I take the engine and throw pure water all over them, which washes all clean off; the trees look healthy and keep clean for about three months. The temperature of an Orange-house should not exceed fifty or fifty-five degrees in winter. In summer I give the trees frequent artificial dews, by throwing water over them with the engine, which, I think, causes the fruit to be thinner in the skin than it would be in a dry heat; the watering greatly adds also to the health and beauty of the trees.

TO BLOOM THE ERYTHRINA CRISTA GALLI THREE TIMES IN ONE SEASON.

BY MR. WILLIAM LEACH, BRAMPTON HALL, LANCASHIRE.

In my routine of visiting gardens I have often seen large plants of this beautiful exotic with but *a few flowers*; and as by proper management it is capable of bearing a profusion, and that more than once in a season, I send you a few practical hints on a mode of treatment which, if pursued, will realise that object.

First. In propagating this plant, take off young shoots from the mother plant when they are about four inches long. I cut them off with a little of the old bark attached to each; this is done any time from January until May. I plant the young shoots each one in a small pot, with a mixture of loam and sand, and afterwards plunge them into a good brisk heat. Shading and watering is particularly attended to. In three or four weeks the plants will have filled the small pots with roots, when they are shifted into 32-sized pots with their balls entire, using rich strong loam. A good heat, plenty of air and manure—water is necessary until the beginning of October, when I find a lesser quantity wanted. As soon as the foliage has decayed, I cut the plants down to within six inches of the roots, turn them out of the pots, clean the roots, and preserve them in sand kept in boxes. Early in January I pot the roots into 32-sized pots, with the compost as named before, and then plunge them into a hot bed frame or pine pit. The roots soon push out a quantity of shoots, when I allow only four to remain on for flowering (the others may be put into pots as before stated); about the middle of March the plants require re-potting into 24-sized pots, and kept in a good bottom and top heat. These plants will flower very fine in April. Early in January, 1852, I potted a two-year old cutting; in April it was six feet high, and profusely covered with blossoms. In May last I cut it down close to the original stem, and in July it was equally as splendid as it was in April. In August I cut it down again, and flowered it for the third time in October; the plant each time was

six feet high, and was exhibited three times at the Horticultural Show, in the same pot in which it flowered in April. It has been recommended to raise young plants from cuttings taken from the strong shoots when the wood is quite hard, and not from young shoots. I have tried both methods repeatedly, and I can obtain much finer plants in one year from the young shoots, than from the hard wooded cuttings at two years old.

OBSERVATIONS ON RHODODENDRONS AND OTHER AMERICAN PLANTS.

BY MESSRS. WATERER, OF BAGSHOT, NURSERY, SURREY.

AMERICAN PLANTS are every year becoming more popular among all classes, from the humble cottager to the affluent peer. They are generally quite hardy, and suffer no injury from our ordinary winters. They bloom in great profusion during the whole of the summer, and they are withal very easily cultivated; and therefore they are indispensable to every garden, no matter what its extent may be, whether a small plot in front of the parlour window of the modest villa, or the extensive lawn and pleasure grounds of the wealthy manor.

It is only within the last few years that they have received that amount of attention which their great merit, as objects of garden decoration, so justly entitles them to. Their present popularity, however, is such as to inspire confidence that they are at length about to assert their claims to the fullest consideration; and it is very probable that, by the extensive planting of Rhododendrons, and the other magnificent kinds, the gardens of England will, in a few years more, present a gorgeousness and beauty of which it would be quite impossible to form the most remote idea from anything that has yet been achieved in the triumph of modern horticulture.

Though it may be safely affirmed that no class of ornamental plants requires so little attention or skilful management as American Plants, we have deemed it desirable to offer a few practical observations for the guidance of amateurs and others, to whom the treatment of this beautiful tribe may be new, or but little understood.

In thus offering the benefit of our experience, which embraces a period little short of fifty years, we do not think it necessary to extend our remarks so far as to form a complete treatise on the subject; at the same time we believe that no essential or important point will be found to be overlooked or lightly valued.

"American Plants," then, as may be premised, include certain genera, all belonging to the natural order Ericaceæ; the principal species, from which the best varieties have more recently been raised, having been originally introduced from the American continent. They are all more or less beautiful; but the Rhododendrons and Azaleas are especially remarkable for their dazzling colours and the profusion of

their flowers, which, when displayed on a grand scale, as in our London exhibition or in our nursery, present a scene which admits of no parallel. They are all connected by certain and easily recognisable affinities; and therefore, when we speak of soil and general culture, we wish it to be understood that our directions are equally applicable to the whole tribe.

There can be no doubt that, compared with other hardy evergreen flowering shrubs, they present one or two features peculiar to themselves; yet long experience has given us the fullest opportunities of forming an opinion on the point, and we venture to presume that we have some claim to be heard. Let none be discouraged, then, in their first efforts to grow these beautiful plants; for we have no hesitation in asserting that they may be successfully managed with only the exercise of ordinary care and intelligence, without which the most elaborate dissertation, or even specific directions, would be of little or no avail.

The plants of which a tribe or order is composed are characterised by a particular constitution. This remark is especially applicable to those now under consideration. It has long been known that Cape Heaths—forming the type of the order to which American Plants belong—have never been grown in France, Belgium, and many parts of Germany, to the same perfection as in England; and the cause assigned has been chiefly the want of proper peaty soil, without which these beautiful greenhouse and hardy plants will not thrive, however favourable other circumstances may be.

This fact, however, has been frequently urged as an argument against the possibility of growing Rhododendrons, and other genera known as American Plants, except in a certain kind of peaty soil; and it is unfortunate for the tenability of an opposite position, that the objection has derived apparent weight by being associated with isolated cases of failure. Yet nothing can be more erroneous than the supposition that there is any difficulty in supplying them, in almost every locality, with soil sufficiently fertile for all practical purposes.

That some districts are more favoured than others, as respects the composition of soil, cannot for a moment be doubted; and it is perfectly true that a rich, well-pulverized peaty soil is the most preferable for these plants; but we have only to visit such places as Sion, the seat of the Duke of Northumberland; Kenwood, the seat of the Earl of Mansfield; and other famed gardens round London, to perceive that Rhododendrons will grow in any kind of good and fertile soil to great perfection, and that they will even propagate themselves to a wonderful extent, covering large plots of ground in wild luxuriance and beauty, as freely as if growing on the borders of an American forest.

Indeed, there are numerous instances of their thriving well in what is called a light, friable, fertile loam, of which the much-prized peats forms but a very insignificant part; and we may safely say that there is no soil in which plants can be grown at all that is not equally suitable for growing Rhododendrons: and no tribe of plants admits so readily of

being removed at almost any season. They can be easily taken out of the ground, even when nearly in flower, and conveyed to any part of the country, without suffering the least injury ; so that a whole garden may be furnished with a mass of bloom with little more than a week's notice, or plants already established may be removed on any emergency, about their flowering time, to positions where they may be required to increase the effect or add to the display, either into large pots near the house or planted out.

In confirmation of this statement, it may be sufficient to remark that the plants which compose our London exhibition are every year removed from our nursery about the middle of May, and carried to the Regent's Park, a distance of thirty miles. Those facts, we think, speak for themselves, and clearly prove that of all ornamental flowering plants none are so easily grown as the subjects of our present notice.

But, though American Plants are not so strictly exclusive in their predilections as may have been supposed, it should not be forgotten that a rich peaty soil is that which most accords with their natural constitution. Yet it is scarcely necessary to state that this soil may be found more or less plentiful in every county in England. Peat, it must be remembered, is composed of certain vegetable substances which have undergone a long and slow process of decay. These substances are chiefly the softer portions of trees, or leaves, nuts, tender twigs or branches, and other *debris* generally abounding the forests. When it is desired, therefore, to provide a good substitute for peat, nothing will be found more suitable than "leaf mould," or rotten leaves mixed with a portion of light sandy soil. Another mode of meeting the want of good bog is to prepare a compost in the following manner :—Collect several loads of what is called the top or surface spit of any plantation, wood, or even grass field ; and the more this surface is impregnated with decayed vegetable particles the better. The thickness of the spit will depend, of course, on circumstances, being more or less according to its composition. When a supply has been obtained, it should be thrown together ; then carefully and freely mixed with leaf-mould, or old and well-rotted dung from a melon frame. In this operation the turfy parts should not be chopped fine, but preserved as rough and large as is compatible with the mixture of the whole mass. When the plants are to be planted in beds, or compartments of more irregular outline, the average depth may be stated at about twenty inches. To this depth the soil should be taken out, and an equivalent portion of the compost already described placed in its stead. At the time of planting, should the weather be very dry, nothing is of greater importance than a copious supply of water. This injunction is the most urgent during the first season ; for after they are fairly established there is, comparatively speaking, but little to be apprehended. In very dry seasons, however, every precaution should be observed to prevent the balls of earth round the roots from becoming too dry—an evil to which they are liable in elevated positions.

We may just state, in conclusion, that we merely offer these directions

respecting soil for the benefit of those who may have ready access to a plentiful supply of leaf-mould and the other ingredients of a rich compost; but we beg to repeat that American Plants will grow in any ordinary garden soil, and therefore all who are desirous of having a display of their beautiful flowers need never be deterred from attempting to grow them from a fear of failure and disappointment.

There is only one point which we think it worth while to notice here—that is, the importance of plucking off the decayed blooms after the plants have done flowering, as this operation is beneficial to their growth, and induces a greater abundance of flower-buds for the following season.

The following are a selection of the newest and best hardy Rhododendrons, which begin to bloom generally about the *first week in June*, and are, therefore, secure from injury by frost.

Atrosanguineum, dark crimson, a very fine variety.

Attraction, fine rosy crimson, excellent habit.

Beauty of Bury Hill, bright crimson, fine large truss of flowers.

Blandyanum, rosy crimson with black spots, very large truss, and robust plant.

Blatteum, purple tinged with crimson, immense truss.

Coccineum mirabile, intense glowing crimson, very fine.

Delicatissimum, light pink, bright carmine spots.

Estandard de Flandre, purple and black spots.

Floribundum coccineum, a very bright crimson, intensely spotted.

John Waterer, an intense glowing carmine, flowers very large and magnificent; it does not bloom till about the 18th of June.

Lady Eleanor Cathcart, transparent vermilion rose, with dark crimson spots, very fine.

Leopardi, rosy purple; the entire blossoms are covered with crimson spots, and truss very large; superb.

Maculatum nigrum, dark purple, intensely spotted.

Mortonianum, rosy crimson, white throat, and black spots; fine.

Mrs. John Waterer, clear bright rosy crimson, immense truss; superb.

Nobleanum bicolor, fine light rose, with distinct white spot; fine.

Rhodoleucops, beautiful rose, with a distinct white blotch.

Roseum superbum, rosy pink, bright carmine spots; one of the best.

The Black Prince, nearly black, distinct, and very fine.

Towardianum, rosy lilac, immense truss; fine form.

Unicum, bright rose, with fine crimson marking.

Vandycke, large and rich crimson flowers of first-rate excellence.

Lady Wenlock, bright crimson nicely spotted, and the truss is *cone-shaped*; fine.

Omphale, rosy crimson, strongly marked with *black spots*.

The following sorts, which are seedlings raised from the noble species *R. catawbiense*, are recommended for general purposes, near walks in woods, or among shrubs of larger growth, on sloping banks near carriage drives, &c.

Catawbiense bicolor, rose with white throat.

Album elegans, very fine pure white, large blossoms and truss.

Delicatissimum, white beautifully tinged with pink; first rate.

Everestianum, lilac and rose spotted with brown, immense truss, and abundant bloomer.

Maculosum, pearly white, with orange centre.

Hyacinthiflorum, rosy purple, very double.

Nivaticum, clear white, and distinct yellow eye.

Pictum, white, with a shining orange blotch.

Melanthaumum, very dark purple tinged with red.

Lindsayanum, fine rosy crimson with black spots.

Pastuosum pleno, semi-double rich purple.

Enchantress, fine white with yellow eyes.

MANAGEMENT OF GLOXINIAS, IN ORDER TO GROW AND BLOOM THEM SUCCESSFULLY IN A GREENHOUSE.

BY THE FOREMAN IN A NOBLEMAN'S GARDEN ESTABLISHMENT, NEAR WOBURN, IN BEDFORDSHIRE.

IN a recent number of this magazine, I observed a correspondent solicited information on this subject, I therefore forward particulars of a mode of treatment which I have pursued, and realised all I desired. To cultivate these charming ornaments successfully in a greenhouse, pursue the following simple method of management:—

In the spring, as soon as they *begin to push* out shoots from the bulbs, shake them gently out of the soil, and put them in a rich light compost, well drained with small broken pots—the size of the pots not to exceed one inch more than the diameter of the bulb. Give a gentle watering, and place them in the warmest part of the greenhouse. Be careful not to over-water, until the plants are of a considerable size; they may then be more freely watered, and will require larger pots. I generally flower them in pots six inches wide at top, and eight deep.

When the greenhouse plants are removed into the open air, the internal heat may be increased; the Gloxinias will then grow rapidly, and will require a proportionate increase of water. Occasionally it will be advantageous to give them manure in a state of solution. *Every day sprinkle them gently on the whole herb, as well as the underside of the leaves, with clear soft water*, from a syringe, or the fine rose of a watering pan. This not only tends to keep off insects—the red spider being fond of Gloxinias—but it greatly contributes to promote their vigorous growth. When, on account of frost at the end of summer, it is needful to bring in the greenhouse plants, the sprinkling must be omitted, and the quantity of water given every time reduced, until they are almost dry. Place them on a dry, airy shelf. Clip (not pull) off all decayed leaves as they occur; “*but never suffer the soil to become*

DUST DRY," as, if that be the case, the bulb will become farinaceous, and, when watered in the spring, will rot.

Gloxinia maculata cannot be grown successfully in a greenhouse so as to flower; it is decidedly a *stove plant*, and requires great heat and moisture to bloom it in perfection; but any of the others, belonging to the general section of *Gloxinias*, may be grown, and will flower properly by the above treatment.

THE USE OF TURF ASHES IN THE COMPOST FOR PICOTEEES AND CARNATIONS.

BY A NORTHAMPTONSHIRE FLORIST.

BEING convinced of the utility of the following method, I offer it to your notice for the use of such of your readers as may be disposed to try it. The chief thing in which I differ from most others whose methods of preparing compost I have seen, is the substituting turf ashes for sand. This I find to be much preferable; and I have no doubt it will be found the same by all those who, like me, are obliged to use cow-dung as the principal article in their compost: by cow-dung, I mean the manure formed by the dung and litter thrown from the cow-house, which should be *at least one year old* before it is used. The cold, heavy nature of this manure is corrected by the contrary properties of the ashes. My method is as follows:—"In March or April I take some turf from the best ground I can, considering that the fatter the soil the better will be the ashes. I do not take it more than four inches deep; and as soon as the turfs are in order, I burn them. When I consider that I have a sufficient quantity of ashes, I mix them as hot as possible with my cow-dung and loam. As to the precise quantity, I am not very particular; much depends on the nature of the loam, and a trial or two will easily determine the proportion. Of our red earth, I allow about one part to one part of ashes, and two parts of dung. This compost should be turned and mixed at least once a fortnight in summer, and once in three weeks or a month in winter; for, notwithstanding all that has been said about the winter preparation of soil, I believe one summer to be worth two winters for the purpose. I do not find it necessary to use quick lime in this compost, though, when I used sand, I thought lime indispensable. The wire-worm I have not seen in the compost, as I now use it; yet I am by no means prepared to say that that formidable enemy of the florist will not attack plants growing in it. After twelve months' preparation, it will be fit for use. Turf-ashes are used by other florists, and all I have conversed with on the subject highly approve of it.

ON RAISING NEW VARIETIES OF PLANTS.

BY A PRACTITIONER.

FROM time to time I have noticed in this magazine the conductor thereof encouraging the hybridising of various classes of plants, and

which induced me two years ago to turn my attention to the process with the Amaryllis, Achimenes, Verbenas, Fuschia, Phlox, Pelargonium, Calceolarias, and others. Some of the seeds I obtained early last summer I sowed immediately, and the others early this spring, and now I have, as the result (from the first sown), a very numerous and almost endless variety of beautifully distinct flowers of the above, with the exception of the Amaryllis. The process is easy, applying the pollen of one flower to the stigma of another. The flower to which the pollen is about to be applied must have its own anthers (containing the pollen) cut away before they burst, after which the pollen from the different plant may be applied to the stigma. If the pollen of the plant to be operated upon is not cut away, the stigma is likely to be operated upon by the pollen of the same flower, and the result be natural seedlings. The stigma, when in a proper state to have the pollen (powder-like) applied, is glutinous outside, and the powder adheres to it. I have noticed that no certain criterion can be relied on as to the form the new plant will take; sometimes I find that the male (pollen) plant is assumed, and in others the contrary. I uniformly found that the more perfect in form both parents were, so was the production, as it respects the colours. I have not had two alike from the same plant; when all the flowers on a plant have been operated upon by pollen from one plant, the most decided, strong, and clear colours give the more distinct in the progeny. It is only by observation, in the progress of the operation and blooming, that the best results can be safely expected in future attempts as to colours; but in form, where the flowers of both are of fine form, those raised therefrom will certainly be good. As far as the majority of my one year's experiments go, I find *in colour* the seedlings partake more of the mother plant, and *in form* that of the plant from which the pollen was brought.

The entire process, from first to last, has afforded me much gratification, and those persons fond of flowers will derive pleasure in its pursuit, and the present time is the best for experimenting. The result of but a few years' application to the system of hybridising has already added immense charms to the beauties of the stove greenhouse and flower garden, as well as to fruits; and the process being now carried on in a far more extensive scale, in a few years we shall, no doubt, have quite astonishing results to grace our floral exhibitions, as well as domestic compartments.

REMARKS ON THE CAMELLIA.

BY AN AMATEUR PLANT CULTIVATOR IN MIDDLESEX.

THE Camellia is justly esteemed one of the finest, if not actually the finest, of our exotics; and indeed, there are few of the beauteous denizens of the greenhouse and conservatory that can lay equal claim to

our attention. Unlike most of its compeers, this lovely genus, at all seasons, whether it be in blossom or not, excites our admiration. During the summer and early winter months, we are pleased with its bold and elegant form, and with the deep glossy hue of its beautiful foliage; whilst from Christmas to May, the various varieties delight and charm by their beautiful and showy flowers, of white, buff, striped, and red, of every shade, from the deep crimson to the soft tint of the maiden's blush. The Camellia may in truth be called, "the most beautiful of the beautiful;" for what, in the whole range of our exotic flora, is more beautiful than a fine specimen of the Old Double White, having, perhaps, one or two dozens of splendid blossoms, fully expanded? The Old Single Red, *C. japonica*, appears to have been introduced into England, in the year 1789; the Old Double White, in 1792, by Sir John Slater, of the East India House; and the Old Double Red, imported in 1794, by Sir Robert Preston, of Vallyfield; and since that time many fine varieties have been imported from China, and hundreds of seedlings have also been raised in this country and on the Continent within the last few years. After all, I scarcely know one that exceeds in beauty the one called *The Old Double Variegated Red*, beautified as it is with irregular blotches of white. In conversation lately with a very celebrated Camellia cultivator, I observed to him that my plant of the Old Double Red had not so many blotched flowers the last few years as previously; he then gave me the following particular mode of treatment, in order to promote the production of variegated blossoms.

To blotch Camellias plentifully with white, they should be forced pretty freely the preceding spring (after they have done flowering), kept a very little dryer than usual, and *freely exposed to the sun after the young wood has ripened*; indeed, if Camellias be perfectly healthy and sound at the root, and have a plentiful supply of water, they will require no shade at all; it is only when they have been much exposed to the action of frost in the winter that it is required, in which case they should be shaded from the hot May sun till the young shoots are pretty well ripened. It may be taken as a general rule, that if the frost in the winter produces a transparency towards the centre of the leaf, the rays of the spring sun, if suffered to bear upon it, will generally turn the parts brown that have been so affected, and the leaf will drop. Plants, however, that are not in a free state of growth will seldom suffer in this way; four or five years is the average longevity of the Camellia leaf, and with good management it may be kept green and healthy a year or two longer, though we often see the plants, when they have not had due attention, carry but one or two years' foliage; these, except when in bloom, have an unsightly appearance. He added further, "The soil I have found most proper for Camellias depends in a great measure on their age: for seedlings or young cuttings intended for stocks or otherwise, when first potted off, I use good fat bog mould, fresh dug, broken rough with the turf and film adhering, mixed with a little white sand, taking care to have a good drainage by filling the pot about one-fourth with well-shaken turf. I never allow but one piece

of broken pot laid hollow over each hole in the pot ; for, unlike the *Erica* or *Epacris*, which delight in *shallow soil with a loose bottom*, the natural abode of the *Camellia* is in a *deep rich soil* ; consequently, I have always found the roots perish as soon as they get into a handful of small potsherds, which some cultivators put into the bottom of the pot. At the next shifting I mix a little light turfy loam with the peat, and at each successive shift increase the proportion of loam ; and for old plants, I use about an equal quantity of loam and bog mould. And a collection of *Camellias* may have some in bloom from September till the succeeding May by the following treatment :—Pick out those you wish to blow late of the backwardest plants the latter end of March or beginning of April, before the wood buds have started, and set them out of doors in a sheltered situation ; there let them stand throughout the summer. If not too forward when put out, they will not commence growing until late in the season, and the flower buds will not be formed before autumn ; these, for the most part, if kept in a cool house through the winter, will not bloom before the following April or May. Those required to bloom early in autumn should be placed in March, or as soon as they have done blooming, in a forcing house, and kept in a good heat, plentifully supplied with water, both at the root and over the foliage, by syringing, increasing both heat and light as the young wood ripens ; after which they should be removed back to the conservatory or greenhouse, where they may remain the rest of the summer. The intermediate succession to flower through the winter should be kept constantly in the conservatory, where they should be frequently syringed, and every means used to promote a healthy and vigorous growth during the early part of the season. Those chosen immediately to succeed these may be selected from the intermediate succession, and turned out of doors as soon as the young wood is well ripened, which is usually in July ; they may stand out until the middle of October.

The *Camellia* requires a little extra heat to cause it to produce both wood and flowers with any degree of luxuriance, and it is in the application of such heat that the entire amount of success or failure depends. The growing season follows closely on that for the production of flowers, and it is then the plants require their first seasonal excitement ; this is caused first by repotting, and secondly by placing the plant in a little higher temperature than that in which it produces its flowers.

The best season for repotting is either *immediately after flowering*, or as soon as the young wood and leaves have become *firm enough* to handle without injury. Now, as before remarked, it is in the production of the new wood that the first stimulus is required, so that if the plants are repotted immediately after flowering, the benefit of the new soil goes at once towards the formation of a new and vigorous growth ; one of the most essential things in the cultivation of this or any other plant, and on this account I greatly prefer the first of the times mentioned as the season for repotting.

REMARKS ON THE SHOW CLASS CALCEOLARIAS.

BY MR. JOHN PLATT, GARDENER, WOODSEATS HOUSE, NEAR THORNHAM.

I AM aware that the successful culture of these charming plants is considered by many persons to be difficult, but a friend of mine manages them superior to anything I have seen elsewhere, and by very easy and simple means. He was kind enough to furnish me with the particulars of his treatment, which, with much pleasure, I forward for insertion in the "Floricultural Cabinet." He states as follows:—"August is the most critical and trying month for herbaceous Calceolarias; and the reason appears to be, that being weakened by the flowering which is just over, and the whole system of the plant stagnated, in consequence of there being no leaves and branches to assimilate food in proportion to the previous excitement, the plant therefore requires rest; and as August is often a very hot month, it is difficult to prevent undue excitement, which at this season is often fatal. We therefore select for them a cool shady situation, and take care that they are not over watered. After a little time a new series of roots are emitted around the base of the stem, and when this is perceived it is proper to shake them out of the pots, prune off any of the old dead roots (but not too close), and re-pot in sizes smaller and more proportioned to the roots; they are then placed in a cold pit, the bottom of which is well drained and covered with fine coal ashes; each pot is placed on a brick or an inverted flower-pot, so as to bring it near to the glass; they are kept close for a day or two, and shaded, after which abundance of air should be given, and in fine weather the lights frequently taken off. As soon as they have well started into growth, they will require to be cut back so as to reduce them into shape. If the cuttings are not required, this cutting back *may* be done at the time of re-potting; but, as it is always best to keep up a young stock, I prefer having them on until the plants have again started into action, at which time the chances are in favour of leaving the old specimens better furnished, and the cuttings are more likely to succeed. I put these cuttings into small pots, and place them in a frame with a gentle bottom heat; they are examined at intervals, and those which are well rooted are removed into a cold pit to harden previous to giving them more pot room. I have now brought both cuttings and old plants to what I call the shifting point; and here I must observe that, with reference to the Calceolaria, it is out of place to give any set time for the shifting into larger pots: the state of the roots must be our guide, and consequently both cuttings and old plants must be often gone over, and those only shifted whose roots are in a fit condition. These operations may be carried on in mild weather all through the winter and early spring, for the Calceolaria is, when kept a few degrees above freezing point, in action during all that time; but as that action is slow, the rooting process is necessarily slow also, and therefore the reason why the shiftings cannot be generalised. The Calceolaria does not at any time re;

quire a great heat ; in fact, it would live out of doors if the temperature did not fall *below the freezing point* ; therefore I think it injudicious to prefer keeping the herbaceous sorts in a greenhouse, where fire heat exists, when they may be *so much better preserved and grown in a cold pit*. I keep them in such a structure up to the time of the BLOOM EXPANDING, WHEN THEY ARE REMOVED TO THE GREENHOUSE ; and to preserve the blossoms a shading of muslin is fastened under the glass, to screen them from sun. Whilst in the cold pits, the plants will require occasional fumigations with tobacco, whether infested or not, as *prevention is better than cure*. They should not be placed too near together, and the flower stalks must be secured as they are thrown up. Shading must be resorted to whenever the sun is out strong ; at *no time* will the plants bear *intense bright sun* ; inattention to this will cause many a blank in plants, and many a crumpled bad flower. With regard to the soil, which also is a point of great importance, I would recommend a rich sandy loam, very fibry and soft, two years from the pasture field ; if not sandy enough, it must be made so. This will suit them well in the early stages ; when the roots are well established and the whole system in full action, an addition of one-third leaf-mould and a little very decomposed manure may be made to the loam. At each shifting the drainage must be kept open ; and water must be given as required ; when in full growth they require plenty.

ON THEORY AND PRACTICE ; ALSO, THE FOOD OF PLANTS.

BY AN EXAMINER.

YOUR *Floricultural Cabinet* is well calculated to make a valuable work, as you adhere to the proper principle, which is, *to diffuse a knowledge of the cultivation of plants deduced from practice*. The object of every cultivator is to produce certain effects ; and when people undertake to produce any effect, who do not know the cause, they generally form some supposition of what the cause is. Such supposition forms theory, which may be true or false ; and as the latter is too often the case, the students of every art are apt to treat theory with contempt, and to depend upon the knowledge to be required by imitating a practitioner. But the knowledge to be obtained from mere practice, however successful, is little to be relied upon ; for, although the cause of success may assist, the practitioner may be ignorant of it ; and, therefore, although the same practice may be followed in another situation, it may fail altogether, because the cause is not there established. If it be an axiom, that every production of nature and of art is the effect of some cause, it must follow, that before any effect can be produced, the cause must be established ; and before any effect can be effectually prevented, the cause must be removed ; and, consequently, before any person can establish or remove a cause, they must first know what it is.

Then, how is a knowledge of the causes of effects to be obtained? Certainly by no other means than by first forming a theory, and then putting it to the test of practical demonstration, to ascertain its truth or falsehood. If a theory be thus proved to be true, the knowledge of it is science: I consider the causes of all effects to be certain elementary principles established in nature, and which are brought into action or rest, and made to exist in a separate or combined state, and to undergo certain changes in form and duration of their existence, by certain immutable laws of nature. My efforts have long been directed to the ascertaining the true causes of the different effects it is desirable to produce by the cultivation of plants, as well as the true causes of those effects it is desired to prevent; and, for this purpose, I have not only put my own theories to the test of repeated practical experiment, but also most of the theories of the celebrated physiologists and chemists, and practical professors of horticulture. And, in this, all who have done me the honour to visit my garden, admit that I have established many important principles of practice. My practical elucidations are more particularly exhibited in the training and feeding of fruit trees: I say *feeding*, because it is an obvious fact, not only that plants require food to sustain them as much as animals do, but that their growth and productions are determined by the quality and the quantity of the food they are supplied with. As to give such an explanation of the nature and properties of different soils, and of different manures, or the elements of the food of plants, would occupy more of your pages than you can afford, you will probably allow me to refer such as wish to make a minute inquiry into those subjects, to a little work published, "On the Causes of the Barrenness and Fruitfulness of Plants and Trees." I will, however, beg leave now to offer the ninth law of nature in the arrangement, for the immediate consideration of your readers, and shall be ready to give any further information in my power. The ninth law—"The leaves form the excretory organs of a plant or tree; and whether the supply of food be great or small, a plant or tree cannot attain, nor sustain itself in, a state of fructification, until it is furnished with a surface of leaves duly proportioned to the sap supplied by the roots. To enable them to perform their functions, it is also necessary that the leaves should be duly exposed to the action of light, and to the influence of the sun and the air." Now, according to this law, it must be obvious that the cutting back and shortening the branches and lessening the quantity of leaves must obstruct and retard, rather than forward the production of flowers, seeds, and fruits; and yet this is a general practice. It generally happens, that when a plant grows luxuriantly to leaves, branches, and stalk, it is but little inclined to produce blossoms. We may, therefore, justly conclude, that in such cases there is a greater supply of food than the leaves are equal to; and that, although we cannot enlarge their powers, we can relieve them in their duties, by lessening the supply of food, and thus promote fructification.

PROPAGATION OF TREES BY CUTTINGS IN SUMMER.

BY A PRACTITIONER.

WHEN a cutting of any deciduous tree is planted in autumn, winter, or spring, it contains within it a portion of the true, as it is has been called, or vital sap of the tree of which it once formed a part. This fluid, relatively to plants, is very closely analogous to the arterial blood in animals; and I shall, therefore, to distinguish it from the watery fluid which rises abundantly through the alburnum, call it the arterial sap of the tree. Cuttings of some species of trees very freely emit roots and leaves, whilst others usually produce a few leaves only, and then die, and others scarcely exhibit any signs of life; but no cutting ever possesses the power of regenerating and adding to itself vitally a single particle of matter, till it has acquired mature and efficient foliage. A part of the arterial sap previously in the cutting assumes an organic solid form, and the cutting, in consequence, necessarily becomes, to some extent, exhausted.

Summer cuttings possess the advantage of having mature and efficient foliage; but such foliage is easily injured or destroyed, and if it be not carefully and skilfully managed, it dies. These cuttings, such as I have usually seen employed, have some mature and efficient foliage, and other foliage which is young and growing, and, consequently, two distinct processes are going on at the same time within them, which operate in opposition to each other. By the mature leaves, carbon, under the influence of light, is taken up from the surrounding atmosphere, and arterial sap is generated. The young and immature leaves, on the contrary, vitiate the air in which they grow by throwing off carbon; and they expend, in adding to their own bulk, that which ought to be expended in the creation of shoots. This circumstance respecting the different operations of immature and mature leaves upon the surrounding air, presented itself to the early labourers in pneumatic chemistry. Dr. Priestley noticed the discharge of oxygen gas, or dephlogisticated air (as it was then called), from mature leaves. Scheele, making, as he supposed, a similar experiment upon the young leaves of germinating beans, found these to vitiate air in which they grew. These results were then supposed to be widely at variance with each other, but subsequent experience has proved both philosophers to have been equally correct.

I possess many seedling young trees of the *Ulmus campestris*, or *suberosa*, or *glabra*; for the widely varying characters of my seedling trees satisfy me, that these three supposed species are varieties only of a single species. One of these seedling plants presented a form of growth which induced me to wish to propagate from it. It shows a strong disposition to aspire to a very great height, with a single straight stem, and with only very small lateral branches, and to be, therefore, calculated to afford sound timber of great length and bulk, which is peculiarly valuable, and difficult to be obtained, for the keels

of large ships; and the original tree is growing with great rapidity in a poor soil and cold climate.

The stem of this tree, near the ground, presented, in July, many very slender shoots, about three inches long. These were then pulled off and reduced to about an inch in length, with a single mature leaf upon the upper end of each, and the cuttings were then planted deeply in the soil. The cuttings were then covered with bell glasses in pots, and put upon the flue of a hot-house, and subjected to a temperature of about 80 degrees. Water was very abundantly given, but the under surfaces of the leaves were not wetted. These were in the slightest degree faded, though they were fully exposed to the sun; and roots were emitted in about fifteen days. I subjected a few cuttings taken from the bearing branches of a mulberry tree to the same mode of management, and with the same result; and I think it extremely probable, that the different varieties of *Camellia*, and trees of almost every species, exclusive of the Fir tribe, might be propagated with perfect success and facility by the same means.

Evergreen trees, of some species, possess the power of ripening their fruit during winter. The common Ivy and the Loquat are well-known examples of this; and this circumstance, combined with many others, led me to infer that the leaves of such trees possess in a second year the same, or at least, nearly the same power as they possessed in the first. I therefore planted about a month ago some cuttings of the old double-blossomed white and Warrahtah *Camellia*, having reduced the wood to little more than half an inch in length, and cut it off obliquely, so as to present a long surface of it; and I reduced it further by paring it very thin and near to its lower extremities. The leaves continue to look perfectly fresh, and the buds in more than one instance have produced shoots of more than an inch in length, and apparently possessing perfect health and much vigour. Water has been very abundantly given; because I conceived that the flow of the arterial sap from the leaf would be so great, comparatively with the quantity of the bark and alburnum of the cuttings, as to preclude the possibility of the rotting of these.

The cuttings above described, presented in the organization a considerable resemblance to seedling trees of different periods of the growth of the latter. The bud very closely resembles the plumule; and the leaf, the cotyledon, extended into a seed leaf; and the organ which has been, and is called a radicle, is certainly a caudex, and not a root. It is capable of being made to extend in some cases, to more than two hundred times its first length, between two articulations, a power which is not possessed in any degrees by the roots of trees. Whether the caudex of the cuttings of *Camellias* above mentioned have emitted, or will, or will not, emit roots, I am not yet prepared to decide, but I entertain very confident hopes of success.

ROYAL BOTANIC SOCIETY.

THE lecture by Professor Bentley, delivered in the Museum of the Royal Botanic Society, on Friday, June 23rd, was "on miscellaneous articles used in the preparation of beverages in common use in different parts of the world," including tea, coffee, cocoa, and chocolate. As tea is the article most generally consumed in this country, Mr. Bentley directed attention principally to it. All infusions of the leaves of plants are called teas; but the plant generally known as tea comes principally from China, though it is cultivated extensively in the East Indies and in other parts of the globe, the climate peculiarly favourable to the growth of good tea being found within 27 and 81 degrees of latitude. The best kind of tea imported from China is derived from the variety "the viridis," so called from the notion that it produced green tea; but it has since been ascertained that black and green tea are gathered from the same plant, the difference in colour and quality being owing to different means of preparing and drying the leaves. The black tea when gathered is thrown into heaps, where it lies for some time before it is rolled; it is then thrown about to expose it the air, and again lies in heaps till it is dried. By this means it undergoes a slight process of fermentation, and the leaves turn black, as all leaves do when gathered and allowed to lie together. The green tea, on the contrary, is rolled and dried as soon as it is gathered, and thus retains the natural colour of the leaves. The properties of tea which render it valuable as an article of food, are derived for the most part from an alkaloid called theine; which contains a large proportion of nitrogen, the element whence flesh and blood are obtained. The effect of tea on the animal frame is to exhilarate the mind, and at the same time to tranquilise the bodily functions, the supply of theine preventing the waste of the body, and in this manner saving food. Mr. Bentley observed that there is a remarkable resemblance in the properties of the vegetable substances selected by the inhabitants of different parts of the world for their common beverages; for the different kinds of teas, coffees, and cocoa all contain an alkaloid resembling theine in its chemical properties and physiological effects, though varying in the proportionate quantities. Tea-leaves, from which the infusion has been extracted, are still valuable for the nutriment they contain, the amount of flesh and blood-producing material being greater in tea than in the cereal grains, and in some countries the natives eat them as food. Paragua tea, gathered from a species of holly, is more stimulating than the tea-plant of China, and when taken in excess produces the injurious effects of ardent spirits. Coffee-tea and Labrador tea belong to the heath tribe of plants, and contain the same principles as the tea from China. The former is extensively used by the people of Sumatra, and has latterly been imported into this country. As it can be sold at the low price of twopence per pound, it might become an important article of food, if a relish could be

acquired for its peculiar flavour. Such a result is not improbable; for the preference now given to tea and coffee is an acquired taste; and as evidence of the difference of taste for teas between the English and Chinese at present, samples of Pekoe flower tea were shown, which is in such high estimation by the Chinese that it costs two guineas a pound, though it has not a sufficiently strong flavour for the English tea-drinker. In treating of coffee, Mr. Bentley pointed out the presence in the coffee berry of the same principle that gives the nutritive and stimulating qualities to tea; and there is in coffee also a volatile oil, which is developed during the process of roasting, that increases its value as an article of food. Raw coffee is improved by age, which gives increased whiteness to the berry. The chicory plant, a species of the common endive, which has been extensively used for mixing with and adulterating coffee, possesses scarcely any portion of the nutritious properties of the coffee berry; and Mr. Bentley strongly discountenanced its use, as it contains no nutriment, and only weakens the beneficial effect of the real beverage. Cocoa contains more nutriment than any of the substances before noticed, and combines the qualities of tea with those of milk. When, therefore, the fatty property it possesses does not disagree with the stomach, cocoa, especially when prepared from what are called "cocoa nibs," is eminently nutritious, and an extremely valuable article of food. Some idea may be formed of the importance of the articles used in the preparation of unfermented beverages, from the quantities that are consumed. Thus, in 1852, fifty-four tons of tea were imported into this country from China, which was but the forty-fifth part of the quantity produced; whilst of coffee thirty-five millions of pounds were consumed in England; and one hundred millions of pounds on the continent. Specimens of the various plants and substances mentioned were exhibited, and much curiosity was manifested to examine the two-guinea a pound tea, which is too refined in flavour for appreciation by English palates.

MISCELLANEOUS.

WELLINGTONIA GIGANTEA. Since this name has been given to the tree which Mr. Lobb discovered to be a new genus, some of our American brethren have given publicity to some unkind remarks upon the same, which appeared in the April "Magazine of Horticulture and Botany," edited by Mr. Hovey, of Boston, in the United States.

It is there stated that long before Mr. Lobb had seen the trees, some of the American Botanists, among which was Mr. W. R. Prince, had seen them, and in consequence they had a prior claim to give the plant a name. They deprecate the name which Dr. Lindley had suggested of *WELLINGTONIA*, and considered it ought to bear the name of

WASHINGTONIA if it is a genus, which at present the American Botanists dispute. Subsequently, the editor had written to Mr. W. R. Prince on the subject, and the following is an extract from his reply. We omit however some abusive expressions which appear in Mr. Prince's letter relative to the HERO after whom it has been named in England.

"THE GIANT TAXODIUM OF CALIFORNIA.—Your note in relation to this tree was duly received. I can only say, that to talk of naming that Taxodium 'Wellingtonia' at this late day, as if it was a new discovery, is utterly ridiculous. I, with a party of twelve others, ascended the Stanislaus in June, 1849,—and there were, besides ourselves, some thousands of Americans who saw the splendid tree referred to, during that year, and it is found growing extensively in the immense belt of forest trees as you ascend to the great central ridge of the Sierra Nevada. The usual size of large trees of this Taxodium was twenty-four feet in circumference, but occasionally we found them thirty-six feet in circumference; and one we met with, more especially large and grand, we christened '*The King of Trees*.' This gigantic species has been confused by many with the Taxodium pinnatum, so plenty at Monterey, and even with the Taxodium sempervirens; and I notice it has been called by some '*Sequidia gigantea*.' I have no time to go more into detail at present, and I will now simply remark further, that if this tree is really a genus distinct from Taxodium, we should, in selecting its title, adopt the name of that man, who more than all others deserves the homage of his race, our beloved Washington. I am, however, of opinion that the tree we have been speaking of and the Taxodium pinnatum, so plenty at Monterey and elsewhere, are not sufficiently distinct from established genera, to authorise the formation of a new one. You are probably aware that it is these two species that in California are called Redwood, and that they furnish the mass of long shingling, so universally in use throughout that country. By-the-by, I recall to mind a good joke that occurred during our mountain rambles. A party of us stood one day gazing at some of these lofty trees which appeared to be about 280 or 300 feet in height, and were expressing our astonishment, when a fellow cried out to us, 'You need not think much of such saplings as them, for if you go about twenty miles further you will find plenty that are so tall you can't see the tops of them.' W. R. PRINCE."

It is evident that Mr. Prince and his companions had not made the discovery which our respected and clever countryman, "Mr. Lobb" did, that it was a different tree to any previously described by any Botanical traveller, and he at once took measures to bring this NEW GENUS into public notice; and himself, his much-respected employers, Messrs. Veitch, or other person they might select, had a first and just claim to give it a name; and it is to the honour of the individual who named it that he selected the most appropriate one he did, and which will remain its enduring one,



FLORAL

OPERATIONS FOR THE MONTH

IN THE FLOWER GARDEN.

JULY is proverbially hot and dry; it will therefore be highly necessary, during the continuance of dry weather, to administer copious supplies of water. This should be done towards the evening of each day, because the plants have then time to absorb the water *gradually*, and appropriate such portion as contributes to their well-being. It is only in extreme cases that water should be given in the morning, because it is then so quickly exhaled from the soil, as well as the leaves, that its refreshing and nutritional properties are almost wholly wasted. Rain-water is best, or that from an exposed pond or tank. Where beds of plants have been repeatedly watered through a rose, the surface of the soil will probably have become *crusted* and almost *impervious* to moisture; consequently they ought to be stirred over occasionally with a small fork. A few annuals, as *Mignonette*, &c., may now be sown to bloom in the autumn, also biennials to bloom next year.

FLORISTS' FLOWERS.—*Auriculas* and *Polyanthas* should be kept in the *shade*. At this season of the year the plants are often attacked with green fly; dip the plants in a solution of tobacco-water. *Tulips* will have perfected their growth, and should now be taken up, as if allowed to remain too long it invariably acts prejudicially on the bulb. *Ranunculuses* will require to be taken up as soon as their foliage has become withered and dry. *Pinks* may still be piped. *Carnations* and *Picotees*: As the pods are fully formed and ready to open, secure them round with a ring of india-rubber, gutta-percha or bass, to prevent their bursting on one side. When blown, they should be shaded. Never suffer the plants to flag for want of water. Proceed with layering. *Dahlias* will require *thinning out* freely as they advance in growth. If sprinkled overhead with soft water late in the evening with a fine rose or syringe, their luxuriance will be greatly promoted. *Pelargoniums* that have shed their flowers should be cut down, disrooted and potted in smaller pots, keeping the plants for a week in a close frame, to assist them in developing their new shoots. *Roses* may now be budded, moist weather being best for the operation. It is of importance that there should be a resemblance between the bud and the stock as to the vigour of vegetative growth, in order to ensure a successful result. If a Rose of slow development is budded on a rampant briar, and all the strength of the latter is turned into the parasitical stranger, health cannot be maintained, nor will a freely vegetating Rose submit to be impeded in its progress by a sluggish stock. Thin away surplus branches from all stocks not budded as early as possible, not to wait a day even, but get the branches strong and healthy.

IN THE FORCING STOVE.

Where stove and green-house plants afford suitable cutting, propagation must now be pursued; as, generally speaking, it can be practised with the greatest success in the *early* rather than the *later* part of the year. It should be remembered that the propagation of most plants is facilitated by the employment of *bottom-heat* and *bell-glasses*. Stove plants will derive great advantage from a partial shading during the glare of the day, and will be less liable to injury from drought. Many plants that will require shifting, such as *Justicias*, *Clerodendrons*, &c., give plenty of water at the roots, syringe daily, in the *evening*, and keep the floors of the house and every part damp, to assist in maintaining a humid atmosphere. Bulbs of *Amaryllis*, &c. should be put together in a pit or frame, where they will be near the glass, and where the influence of the sun, with a gradual

diminution of water will mature them. Never permitting the foliage to flag is a good criterion as to the quantity of moisture plants require; keep as near that state as possible. Re-pot Achimenes, Gloxinias, Gesneras, &c.

THE GREENHOUSE, ETC.

As a free ingress of air must necessarily be permitted during fine weather, its rapid circulation, conjoined with active solar heat, must cause a rapid evaporation both from the plants and soil; hence there exists a necessity, under the above circumstances, of watering and syringing frequently. However beneficial a screen may be during bright hot sun, its presence is not required while the sun is obscured. Encourage the growth of Azaleas and Camellias by keeping them comparatively close (with shade during sunshine), and supplying them liberally with moisture administered by the syringe. Propagate Roses by cuttings from those plants which have been forced, and place the plants in a rather shady situation, in order that they may have a period of rest for a few weeks. Calceolarias that have ceased blooming should be re-potted; cut off dead tops, place the plants in a situation where they can be shaded from hot sun, admitting it morning and evening. Seed should be sown, so as to have the plants strong, to endure winter; such will bloom next season, and be much more vigorous than plants raised from cuttings. Cinerarias also that have done blooming should have the tops cut off, be fumigated, in a close frame, as they are often affected with green fly; after which the plants should be turned out of the pots, and planted in a somewhat shady bed of good soil in the garden. Sow seed now; the young plants will bloom early next spring. Epacrises, Ericas, &c. now done blooming, may be cut in, to render them bushy. The tubers of Tropæolums which have ceased blooming, and the tops withered, must be taken out of the soil, or be kept in a bag, &c., or the pot must be put aside, where it may have the soil kept dry till potting time. Greenhouse plants placed in the open air in pots should have frequent waterings at the under side of the foliage, to destroy or keep down green fly. Moss laid lightly between the pots keeps the roots somewhat cool, and tends to promote the health of the plants. Occasionally water the moss, if the weather be hot and dry. A concrete floor, or one formed of lime rubbish or fine gravel, cemented together with gas tar, is essential to keep the worms out of the pots.

BRIEF REMARKS.

THE MACLURA AURANTIA (or Osage Orange) A HEDGE PLANT.—This plant is a native of North America, and was first introduced in England in 1818. It is quite hardy; but as it has seldom bloomed in this country, it has attracted but little attention. In America it has lately been used as a hedge plant, and strongly recommended to us for the same purpose. In referring to it, Professor Turner, of Jacksonville, in the United States, writes—"Our hedges are indeed splendid, and when three or four years old will turn anything, bidding defiance to man, pig, or fowls." He adds, "It is the best hedge plant that has hitherto been discovered in this or any other country." It is a stiff *bushy* growing plant, bearing numerous strong hooked spines, through which it would be difficult for any intruder to pass, when the shoots are once well interwoven together. We extract the following particulars from a pamphlet recently sent us from Boston:—

"If the seeds are procured in spring, planting may be deferred until the ground has become warm. In the latitude of New England, any time during the month of May has been found to answer. In order to have them vegetate quickly, they should be put to soak in soft warm water, and allowed to remain three, four, or five days, or until they are very much swollen, and the germ has begun to appear. Keep the water constantly warm by allowing the vessel to stand in a warm place covered with a cloth, and change the water daily, to avoid fermentation; mix with a little dry earth or sand when you get ready to plant. The ground for the nursery should be a rich sandy loam, deeply worked and finely pulverised. Proceed to lay

it out in drills 18 inches apart, and drop the seed at intervals of half an inch in the row; cover firmly with fine earth a few inches deep. They should be well attended to throughout the season, in order to secure as large a growth as possible. A quart of seed will produce 3,000 or 4,000 plants. It sells in America for a dollar a quart. It will take 10,000 or 12,000 plants for a mile of hedge.

"In preparing for the hedge, unless the soil is very mellow and rich, a trench not less than two feet wide, and as deep, should be dug on the line where the hedge is to stand, and filled up with equal parts of well-rotted manure or compost, and rich earth. Planting may be done after warm weather has commenced in spring. The plants should be prepared for setting by shortening the roots to within 8 or 9 inches, and the top to within 1 inch of the root. Select those of a uniform size as the best to be planted together; stretch a line where the row is to stand, and set out the plants not more than 10 inches apart, in a single line thus— * * * * or diagonally, thus * * * * making them a foot apart in each row. It is recommended never to set the plants further apart than stated above, as at greater intervals the stalks must grow larger and the roots extend proportionally; besides, it requires much more labour in pruning, for which the saving in plants is by no means adequate. As regards the single or double row, Professor Turner and others maintain that a single line is all that is necessary or desirable, while some are inclined to the latter method. Either undoubtedly answers the purpose well.

"The Osage Orange will bear almost any amount of trimming, and a hedge sufficiently firm and compact at the base can be made in no other way than by regular and severe cutting down. The spring succeeding, or one year from the setting, cut all down to within 4 inches of the ground. In consequence of the first pruning at the time of setting each plant will have thrown out three or four shoots. The second cutting will cause these to multiply to six or eight, which will nearly fill the space between the plants. A second trimming should be given when the plants are making a vigorous growth, from the middle to the last of June, cutting off the tops smooth and even to within 4 inches of the ground. The next spring cut to within 5 inches of the preceding cutting, and in June likewise. Continue these spring and June prunings, increasing the distance an inch every year until the hedge shall reach the height desired. The side and lateral branches may be pruned and thickened so as to render it impenetrable to a bird. As regards the shape of the hedge, the taste of the grower will dictate. A neat and most convenient shape for a strong hedge is about 5 feet high and 3 feet wide at the bottom, gradually narrowing so as to render the top like the ridge of a house. The growth after a few years is quite slow, and the shoots so fine that one can scarce believe it to be the same plant. One trimming a year will probably be all that will be necessary, except for ornamental hedges.

"The Osage Orange will be found a most efficient protection to orchards as gardens, as it is much easier to scale any kind of board fence that can be made, than an Osage Orange hedge 5 feet high. It is highly ornamental, and will also be found very suitable and appropriate for enclosing churchyards and cemeteries."

Messrs. Charlwood and Co., seedsmen, of Covent Garden, have received seed, and offer it for sale at a cheap price.

GROWING ORCHIDS FROM SEEDS.—At the present time there are few subjects connected with plant growing on which there is less recorded information than that of growing Orchids from seeds. I am not aware that there is any case on record of hybridisation having been effected among Orchids, though there seems no doubt that such could be accomplished by careful manipulation, an inference I draw from reasoning analogically on experiments made here to get seed. Many of our indigenous Orchids appear to seed freely, whilst comparatively few exotic species among our cultivated collections produce seed, circumstances suggestive of the idea that the latter require artificial assistance, which can be readily afforded, by carefully applying the pollen masses to the viscid face of the column and rostellum. But whether the seeds of hardy Orchids be generally imperfect, or the necessary circumstances for vegetation, and the subsequent growth of the young plants wanting, we certainly do not find crops of young orchids growing spontaneously in various stages of

growth, as occurs with most other endogens, though, when orchid seed does vegetate under favourable circumstances, a very large number of the myriads of extremely minute seeds contained in the ovaries are perfect, whether artificially impregnated or not. Within the last five years, seedlings of the following species have been raised in the Orchid-house at Glasnevin, namely, *Epidendrum elongatum*, and *crassifolium*, *Cattleya*, *Forbesii*, and *Phaius albus*, the seeds of which all vegetate freely. The manner of sowing the seeds, and treating the young seedlings, has been to allow the fine dust-like seed to fall from the ovaries as soon as they show symptoms of ripeness, which is readily known by the ovaries bursting open on one side. When this takes place, they are either taken from the plant and shaken gently over the surface of the other Orchid-pots, on the loose material used for growing them in, or on the pots prepared for the purpose, after which, constant shade, a steady high temperature, with abundance of moisture, are all requisites which are absolutely necessary to insure success. In the course of eight or nine days after sowing, the seeds, which at first had the appearance of a fine white powder, begin to assume a darker colour to the naked eye, and, if looked at with a Codrington, or even a simple lens, evident signs of vegetation may be perceived, which increase until the protrusion of the young radicle and cotyledon takes place, which varies from a fortnight to three weeks. From this period of their growth, the young plants grow rapidly, and the rootlets lay hold of whatever material is supplied to them. If the seeds happen, either accidentally or intentionally, to be made to vegetate on bare wood, as in some instances has been the case, the young roots extend themselves in different directions, adhering closely to the bark, and make great progress compared with the growth of the stems, thus affording beautiful examples of the manner in which epiphytical plants fix themselves so firmly on the highest boughs of lofty trees in tropical forests, as well as accounting for the isolated positions they frequently occupy in their natural state. The principal difficulty to contend with in rearing the young seedlings has been found to consist in their treatment during the first year, particularly the winter months, when they are very liable to perish, if anything approaching to extremes of moisture, draught, cold, or even heat be permitted; though a steady medium of all those requisites is necessary. The second year's growth has been one during which the plants made much progress, and the only two kinds which have been brought to a flowering state have bloomed the third season. These are *Epidendrum crassifolium*, and *Phaius albus*.

D. M., Glasnevin Botanic Garden, Dublin.

ON CARNATIONS.—Amongst the many valuable observations in your excellent work, on the culture of this beautiful flower, I do not meet with any remark which affords information and advice on the subject of their *suddenly withering and dying* at this time (May 20) of the year. In September last, I purchased several pairs from different eminent florists, and when they reached me, I thought I had never seen any looking more healthy and fresh. During the *winter months*, I adopted the course recommended by your correspondents; and, in April, I potted them in pairs into the flowering pots, and, until a week since, no layers could possibly present a more promising appearance, when, much to my surprise, not less than half a score of them rapidly withered and died: they had been regularly watered twice a week with soft water. On examining the stems, I found them all decayed immediately below the surface, and but little increased in roots, the mould, not as I expected, containing worms or slugs. The first time I observed the change, I followed the advice of *watering them with lime water*, but it was all to no purpose; and one most remarkable fact is, that, in one or two instances, only *one plant* in a pot died, the other continuing perfectly healthy. If they had all been affected in pairs I should have suspected the compost. Such, however, I am satisfied was not the cause; and that plants apparently so healthy, and in such an advanced stage, attended with every possible care, should so suddenly die, is to me at present unaccountable, and certainly a great disappointment. If, therefore, any of your experienced correspondents will oblige me with a few observations on the subject, I can assure you it will be conferring a particular and general favour, as I hear many of my neighbours have experienced the same misfortune, and are equally at a loss,

AN AMATEUR CULTIVATOR.

ON PLACING GREENHOUSE PLANTS IN THE OPEN AIR DURING SUMMER.—When the pots are exposed to the heat of the sun and drying winds, the fibrous roots, which are in quantity about the roots, are much injured by it, although the interior of the ball of earth be in a moist condition. The result of the pots being so exposed during summer is soon apparent by the edges of the leaves turning brown, or many of the leaves becoming wholly so. The plan I have adopted for four years has been the following, and the plants have grown freely and been of a fine healthy green, blooming profusely. I made a bed of sifted gravel, six inches deep, choosing the gravel that was about the size of horse beans. This gravel allowed the excess of water to pass away. It was laid on a concrete floor, formed of finer gravel and gas tar, which prevented worms entering through into the pots. The rough gravel allowed the pots to be plunged a little, so that the plants were not blown over, but kept steadily in their position. Having placed the pots, I fill up the spaces between with light moss, nearly to the rims of the pots. This method kept them cool, but not wet. If this be inserted in the next number of the "Cabinet," it may be of service to some of those persons who turn out plants during the summer.

A FLOWER GARDENER.

ON HERACLEUM ASPERUM.—I am much interested in a plant which, although possessing no beauty of flower, is distinguished by its size and stately appearance—*Heracleum asperum*, the Siberian cow parsnip, which in the open border, under favourable circumstances, will attain a height of ten feet, with leaves four or five feet long. It is a biennial, and should be sown where it is intended to stand, in a rich soil. When it shoots up the second year, it may be watered with liquid manure and warm water, which will greatly promote its rapid and vigorous growth.

W. C. J.

FANCY PELARGONIUMS.—These are almost without exception regarded as pot-plants only, and treated as such; planting them in the open ground is very seldom thought of, much less using them largely as bedding plants. The scarlet and variegated sorts, it need scarcely be observed, are necessary to every flower-garden; but the more beautiful fancy kinds, except one or two varieties, are but rarely indulged with a place there. It is the more remarkable that this is the case, when it is remembered how exquisitely beautiful they become, in good hands, when grown in pots under glass. It might be thought, if they only succeeded proportionately well in the open ground, which they will do, that they merit a trial there at least; and the fact is, it is the want of this trial, in the majority of cases, that prevents their admittance to the flower-garden. At Trentham, however, and a few other places, the fancy varieties are placed on the same footing as the scarlet, variegated, and Ivy-leaved kinds, and the effect the whole creates is such as to render the site they occupy the most attractive feature in the grounds. If, then, by dealing with fancy Pelargoniums as with other flower-garden plants, they can be made equally useful, what might not be done with them if the same principle were carried out in preparing plants for turning into the open ground that produces such gratifying results with those cultivated in pots? The fancy Pelargonium grows exceedingly rank when planted in rich flower-garden soil, branching very strongly, and bearing leaves twice their usual size; but few flowers, and those few neither of the proper size, shape, nor colour. Providing soil meagre in quality and quantity in which to grow them is, therefore, required to bring about the desired result; if, in conjunction with its provision, aged plants were also employed, the end in view will be more effectually gained. This last precaution would of itself suffice, and better effect the object than almost any combination of measures. Every one is familiar with the practice of lifting scarlet Pelargoniums year after year from the open garden, because they are more serviceable for future use than young plants, by bearing flowers instead of growing exuberantly; and what is successful in their case, is assuredly equally so, in regard to the fancy kinds. As the planting season is at hand, I would commend these observations on this popular flower to the attention of your readers, trusting that many of them will give the plant a trial in the way I have mentioned. The kinds I have found to succeed the best are *Anais*, *Queen Victoria*, *Hero of Surrey*, and *Defiance*. *A. Gardener's Chronicle*.

ACACIAS.—Of the whole class of New Holland plants, few are more interesting than Acacias. The strange variety in the phyllodes or leaves, the profusion and fragrance of their blossoms, and the season of the year when they are in the greatest perfection, render them eminently worthy of cultivation. My object, therefore, in the following remarks is to bring, if possible, this interesting tribe of plants more into notice than it ever yet has been; and with that view, I have sketched or drawn out the more prominent characters of a collection of twenty-five, well adapted for the conservatory border, shelves, or the greenhouse stage; but before I commence my enumeration, permit me to offer a few words common to the generality of those I intend bringing under notice:—First, I have to state that the whole of these Acacias are natives of various parts of New Holland; therefore enjoying a brisk growing climate through the spring months, and a dry atmosphere during summer. And thus we are furnished with two leading points whereon to base the successful cultivation of this genus; these are, to maintain such a condition of climate as will insure a quick growth, and when once that is obtained, nothing is better for ripening it than an exposure to bright sunlight, with a free circulation of air at all times. Second, Acacias generally seed well; and thus propagation is rendered easy, as the seeds germinate freely, either when sown as soon as they are ripe, or kept back until the ensuing spring. In the latter case, they must be soaked in hot water. I have, however, seen seeds which have fallen from cyanophylla and other species, spring up as plentifully as Sycamore. Another mode of propagation is by means of cuttings placed in sharp sand, and the pots placed on a warm greenhouse shelf for a month or six weeks, and then introduced into a growing temperature of about 70°, taking care to have the cuttings covered with bell-glasses, until roots have been freely emitted; afterwards, pot off singly, and place them again in the same situation, until they have got well established, when nothing more is needed than ordinary attention. The soil most suitable for the Acacia is three-quarters good turfy loam, with the remainder made up of peat and sharp sand. Another point, which I think is not generally known, is that the generality of them, although very gummy, stand the knife well, without appearing to suffer from its effects; at least with some species its application is absolutely necessary, in order to form good specimens, and keep them within bounds.—J. A. BECKMAN. *Gardener's Chronicle*.

ON DESTROYING ANTS.—Being from home some time, I had not the opportunity of reading earlier several of my late numbers. In one I perceive a query respecting Ants; and if you think my experiment likely to be of any utility, I shall feel very glad in having it in my power to tender a trifle to so generous and valuable a work. I have a large garden, two-thirds of which is a kitchen garden, the other a flower-garden. I had some valuable apple trees in the former, also peach, nectarine, and apricots, against the walls, from which, for three years, I could obtain but little fruit; the bloom was abundant, but as soon as it set, and got a little size, it nearly all fell off; and on very strict observance one day, I perceived the trees were all infested with thousands of Ants; and on speaking of it to a clever old gentleman in gardening, he said that tar was the only preventive to those insects, and that I must tar the trees about three or four feet high from the ground. Accordingly, the next day, I had it attended to, by having a pot of tar brought into the garden, and an old paint brush; fearing this might injure the bark of the tree, I had a ring made of it quite round the bole of the trees next the earth, and a thick coating along the lower part of the brick wall; and when it was getting dry, I gave a second coating. I soon perceived the Ants would not touch it; the smell seemed to annoy them, for scarce any were caught on it. The next thing was to destroy the insects; and as I knew lime would kill small insects, I had a large tub of lime (finely sifted with a hair sieve) brought and kept there; their haunts are easily traced, but will require for the first time dressing, a man and a boy. Where there is a great quantity of these marauders, they make their roads, and very frequently across the paths, which is soon perceived, which will direct you to their haunts. Where they enter, by small apertures in the ground, having ready a sieve full of lime, and a water-pot full of strong lime water, take a spade and gently turn up the earth till you come to the Ants, which will be found in immense

numbers; sift the lime over them immediately; this confuses them. Rake the earth on them quick, and water over well with the water pot; this first dressing is some trouble, but afterwards a boy can do it well, if shown how to leave the earth peat. The next summer we pursued the same plan, only I used thick gas tar, which did equally well; also in winter I had a solution of gas tar and soft water, and washed the wall and the trees with it, but did not find half the number of insects, and the next a very few; and afterwards had no further annoyance from them, but plenty of fruit. The white currant trees they attacked, when in full bloom, which nearly all fell off; the flowers did not suffer much from them, except the succulent kind. As to Balsams, I could not get one to bloom; in my observations of them, I perceived they attacked the stalk of the fruit or flower, next to the tree, and by sapping out the juice which should nourish the fruit or flower, caused it to decay and fall off. Upon taking up some of the fresh-fallen apples, and cutting through the stalks, I found them dry and spongy.—A SUBSCRIBER.

COMPOSTS.—If H. S. procures good loam, very rotten horse or cow dung (quite mould), silver or white pit sand, and peat or heath mould, he will have all the ingredients necessary for Composts for almost every plant that grows. The proportions must of course be adapted to the nature and necessities of each particular plant.—A LONDON PLANT PROPAGATOR.

ON TRAINING THE CAMELLIA RETICULATA.—All who are engaged in growing the Camellia are aware that the *C. reticulata* is one of the most unmanageable to bring into a good form; nor, indeed, is it likely to receive much attention on account of its own merits, while the number of far more beautiful varieties is being augmented every year. But though it is principally used as a stock on which to graft better sorts, there are but few collections in which it is not allotted a place; and it is certainly desirable to retain it, as its amazing size (ten inches across) and showy colour compensate for any defects. In a communication published in the "Annales de la Société d'Horticulture de Paris," M. Neumann briefly notices the results of an experiment which he made with a plant of this sort, and which, instituted by so eminent a cultivator, would seem to prove that this desirable object may be attained with complete success. M. Neumann narrates his experiment as follows:—"Last year, selecting a vigorous plant for my purpose, I commenced to pinch off the young shoots as soon as they were two inches long. The operation was performed about the end of April. This year the same plant produced three flowers, and twenty-seven wood buds, or shoots, of which a good number were borne on the wood three and four years old, a circumstance which never happens in the absence of such an operation." Pinching the young shoots, when properly performed, is always conducive to the growth of fresh wood, as may be seen in the dense and handsome specimens which are exhibited every year; but though this practice is familiar to all horticulturists, no one except M. Neumann appears to have thought it worth while to apply it to the variety of Camellia under consideration.

TO BANISH ANTS.—An effectual method of banishing ants from any particular spot or plant infested by them, is accomplished thus.—With a trowel turn up the soil containing the ants, eggs, &c.; let it lie loosely, and pour upon the place a pot of sand. In a few days the ants will have deserted the spot, being effectually prevented by the falling in of the sand from continuing their labours.—A. B.

ON HEATING BY HOT WATER IN GLASS TUBES.—R. must be under some mistake respecting glass tubes employed in hot water apparatus, as his statement that they give out heat quicker, and retain it longer, is self-contradictory, to say nothing about the affording a higher temperature. The subject was most accurately investigated by Mr. T. Tredgold some years ago. The result was, that water in a glass tube gives off its heat rather more slowly than in an iron one, in the ratio of 155, 180, where the iron is covered with rust, as hot water pipes generally are; consequently iron pipes give out heat quicker, and under equal areas of external surface produce a higher temperature than glass would, and of course the heat contained in them is more rapidly expended.

LIQUID MANURE FOR CARNATIONS AND PICOTEEs.—Your contributor may safely apply the drainings from the stable, cow-house, or manure-heaps. It should be stored in a covered tank, in a perfectly clean state, and before using, any fermentation incidental to recent drainings should be permitted to pass off. When applied, dilute it with six or seven times its bulk of soft water, and let the plants have it about thrice a week, in the evening, during the swelling of the buds. But it must always be borne in mind, a strong plant will luxuriate in that food which to a weakly one would be repletion and death. Where accessible, sheep-droppings form the basis of a liquid manure equal to any, but these I cannot obtain. Cow-manure also makes an admirably fertilizing liquid; but whenever a decoction is prepared from green manures, care should be taken to destroy the grubs they are so likely to engender, by the introduction of a small quantity of quick-lime. Stimulants of a cool nature are an essential for the carnation; everything hot and highly exciting, as guano, night-soil, &c., should be carefully avoided.—E. S. D. *Midland Florist*.

AMARYLLIS BELLADONNA IN POTS.—I recommend any of your readers who wish to cultivate this plant in pots, to try the following experiment:—keep the plants constantly on a light shelf in the greenhouse, with a pan of wet sand underneath them, which should never be allowed to become quite dry, not even in summer, when the plant is dormant. By this treatment some bulbs received from the Cape of Good Hope, which if not *A. belladonna*, can hardly be distinguished from that species, have flowered regularly every autumn in great luxuriance. They should never be fresh potted unless the roots split the pots, which some of mine have none, and of course the foregoing treatment must not be adopted till the bulbs have rooted themselves. This management was adopted accidentally as regards these bulbs, having been ordered, under the suggestion of the Rev. W. Herbert, for *Brunsvigia Josephina* and *multiflora*, which were received at the same time, and which now flower regularly every other year. For some fifteen years before, I never succeeded in getting any of them to flower. The ordinary cause of failure in the cultivation of *B. Josephina* is too much heat in winter, and want of moisture in summer.—J. R.

ATMOSPHERIC INFLUENCE ON PLANTS.—The pressure of the atmosphere has a decided influence on the form and life of plants. From the abundance of their leafy organs provided with porous openings, plants live principally in and through their surfaces; and hence their dependence on the surrounding medium. Animals are dependent rather on internal impulses and stimuli; they originate and maintain their own temperature, and, by means of muscular movement, their own electric currents, and the chemical vital processes which depend on and react upon those currents. A species of skin respiration is an active and important vital function in plants; and this respiration, in so far as it consists in evaporation, inhalation, and exhalation of fluids, is dependent on the pressure of the atmosphere. Therefore it is that alpine plants are more aromatic, and are hairy and covered with numerous pores. For according to zoonomic experience, organs become more abundant and more perfect in proportion to the facility with which the conditions necessary for the exercise of their functions are fulfilled, as I have elsewhere shown. In alpine plants the disturbance of their skin-respiration occasioned by increased atmospheric pressure, makes it very difficult for such plants to flourish in the low grounds. The question whether the mean pressure of the aerial ocean which surrounds our globe has always been the same, is quite undecided; we do not even know accurately whether the mean height of the barometer has continued the same at the same place for a century past. According to Poleni's and Toaldo's observations, the pressure would have seemed to vary. The correctness of their observations has long been doubted, but the recent researches of Carlini render it almost probable that the mean height of the barometer is diminishing in Milan. Perhaps the phenomena is a very local one, and dependent on variations in descending atmospheric currents.—*Humboldt's Aspects of Nature*.





1, *Spiraea Grandiflora*
2, *Geranium Pratense* flore pleno.



AUGUST, 1854.

"Tis a fair sight, that vest of gold,
Those wreaths that August's brow enfold,
Oh ! 'tis a goodly sight and fair,
To see the fields their produce bear,
Waved by the breeze's lingering wing,
So thick, they seemed to laugh and sing,
And call the heart to feel delight,
Rejoicing in the bounteous sight,
And call the reaper's skilful hand
To cull the riches of the land."

ILLUSTRATIONS.

I. SPIRÆA GRANDIFLORA.

LARGE FLOWERED SPIRÆA.

THE name SPIRÆA is derived from *speirao*, to become spiral ; in allusion to the flexile branches being suitable for twisting into garlands. It is also called BRIDEWORT.

This elegant and interesting family of plants is composed of nearly an equal number of *hardy shrubs*, and *hardy herbaceous perennials*.

Our readers are familiar with some of the latter, especially the *Spiræa Ulmaria*, Meadow-sweet, or Queen of the Meadows, which abounds in moist meadows and woods, perfuming the air with the hawthorn-like scent of its abundant white flowers.

"Each dry entangled copse empurpled glows
With orchis blooms; while in the moistened plain
The meadow-sweet its luscious fragrance yields."

The SHRUBBY section of Spiræas are elegant blooming, and flower in profusion, also most of them are handsomely formed bushes. The one we now figure is a valuable acquisition to them. Mr. Fortune met with it in Northern China, and sent it to Messrs. Standish and Noble, nurserymen, of Bagshot, under the name of *Amelanchier racemosa*. It is quite hardy, and bloomed there this season. It forms a branch-

ing, twiggy, bushy plant of medium size, and blooms in profusion in terminal erect racemes.

Its numerous *large* white flowers are very showy, and render it highly ornamental, worthy of a place in every bed or border of shrubs.

"Peaceful and lowly in their native soil,
They neither know to spin or care to toil;
Yet with confest magnificence they shine."

The collection of *shrubby* *Spiræas* in the Royal Gardens, at Kew, comprises many that are particularly handsome and ornamental, some being in bloom as early in the spring as April, and are succeeded by others to the end of summer. A descriptive list of the best, of which we have taken notes, will appear next month.

II. GERANIUM PRATENSE FLORE-PLENO.—An *herbaceous perennial* plant, which grows about 18 inches high, and forms a close, neat bush, blooming *very profusely*. The plant from which we had our specimen is about 18 inches across, and had upwards of five hundred blossoms. They are produced in terminal branching panicles bearing a succession of DOUBLE FLOWERS for a long period. The plant is of free growth, and well deserves a place in every flower garden. It is a native of Scotland, and in but few collections (of *this class of plants*) in England.

NOTES ON NEW OR RARE PLANTS.

Buddleia CRISPA. *The crisped-leaved.*—This very handsome shrub was discovered by Major Madden, near Almorah, in Western Himalaya, who sent seeds to the Glasnevin Botanic Garden, Dublin. It proves to be as hardy as the well known *Buddleia globosa*, and if afforded the protection of being trained to a wall, it will bear our winters without injury, in any part of England. This new species will grow to the height of twelve to fourteen feet, branching, leaves four inches long and are long heart-shaped. The flowers are produced in long terminal branching spikes, forming a *pyramidal head* about five inches long. Each blossom has a narrow brown tube about one-third of an inch long and the front of the flower is nearly half an inch across, lilac with a white eye. The head of bloom contains a great number of blossoms, and a large plant in bloom will be highly ornamental. It blooms in the early part of the year, and the flowers scent the atmosphere very powerfully around with a delightful fragrance. (Figured in *Bot. Mag.*, 4793.)

CASSIOPE FASTIGIATA. (Synonyme, *Andromeda fastigiata*.)—This very interesting small shrub was discovered by Major Madden, in North-Western Himalaya, where he found it growing abundant at elevations of from 12,000 to 13,000 feet. Seeds of it were sent to Mr. Moore, of the Glasnevin Botanic Gardens, Dublin. Dr. Hooker, too, found it in abundance in the mountains of Sikkim Himalaya, at as high an elevation as from 10,000 to 14,000 feet.

It is a small shrub, very much branched, and the leaves are *short* arranged along the shoots like tiles (imbricated in four rows, making the shoot four angled), and having a *white*, silvery eye-lash like edging. The branches are somewhat drooping. The flowers are bell-shaped, *drooping*, about one-third of an inch long, and half an inch across the front of the blossom. They are *white*, produced towards the ends of the shoots from one to six blossoms in each cluster. It is exceedingly pretty and interesting: such large flowers and small foliage produce a striking appearance. It will become a general favourite; would be valuable for a rock-work, or the front of a bed of American shrubs, &c. (Figured in *Bot. Mag.*, 4796.)

CATASETUM NASO, VARIETIES.—The *C. Naso* is a native of Caracacus. The two following *varieties* have bloomed in the orchid stove at Sion Gardens, and are figured in the *Bot. Mag.*, 4792.

Variety 1.—The flowers are borne on erect spikes, drooping, somewhat bell-shaped, two inches long, green, yellow and white, intermixed, and numerous spotted in bars, with a rich black purple.

No. 2.—The flowers are a little larger than those of No. 1, and expand more openly. The sepals are broad, green, beautifully spotted with black purple. The petals are green with a broad margin of purplish-red, and having large black spots. The labellum is of a purplish-red with a streak of white round the eye. Both the varieties are pretty and very interesting.

CLEMATIS BARBELLATA. THE BEARDETTE TRAVELLERS' JOY.—This singular species is a native of the Western Himalaya, where it was first detected by Mr. Royle and Mr. Pakenham. And Major Madden sent seeds of it to the Glasnevin Botanic Garden, Dublin, where it has bloomed, and proves quite hardy. The plant is a climber, vigorous, and a free bloomer. Each blossom is drooping, and forms a large bell-shaped flower of four petals, the tops of which recurve outwards.

THE PRODUCTION OF PLANTS BY HYBRIDIZATION,

• BY THE EDITOR OF THE MAGAZINE OF HORTICULTURE AND BOTANY.

OUR object at this time is to introduce to the attention of amateurs, who are interested in the hybridization of plants, the views of a cultivator, which we find in M'Intosh's *Book of the Garden*, now issuing in numbers from the press.

We are but just beginning to appreciate the importance of this art in the production of new varieties, both of fruits and flowers; very few among our cultivators have attempted the work carefully and scientifically, and therefore we have few or no reliable experiments to refer to. But we know this, that the chance seedlings which spring up in every garden, often prove much superior to the parents in the near vicinity; and such being the fact, why should not judicious hybridi-

zation, done with a view to produce certain results, accomplish all and much more than nature, left to its own caprices?

If every breeze which sweeps over a cornfield planted with various kind, will so distribute the pollen as to find all colours of the grain in a single ear, should we not see and admit the vast results which may be accomplished by the hand of man, guided by science, in effecting changes in this and other plants? Indeed we have as yet but just begun to learn the great alterations which may be made in certain families of plants,—the highly ornamental character which may be given to others, and the improvement to be effected among our choicest fruits and vegetables. Followed up with attention and perseverance, as certain improvements may be made in fruits and plants, as the same care and perseverance have made improvements in the breeds of cattle. The Diana and Concord grapes are sufficient evidence to show how great are the changes of a single generation of accidental origin; and our seedling strawberries, the Boston Pine and Hovey, are equally good evidence of what thorough and complete hybridization will effect by bringing two ordinary varieties together.

We shall have some experiments to detail hereafter; but now, as the season is approaching when hybridization may be effected, especially among plants, the following remarks on the *modus operandi* of the process will be found exceedingly interesting:—

To those who would attempt the hybridizing or cross-breeding of plants, I will now offer some suggestions for their guidance.

It is an *essential* element to success that the operator be possessed of indomitable *patience, watchfulness, and perseverance*. Having determined on the subjects on which he is to operate; if the plants are in the *open ground*, he will have them put into pots, and removed under glass, so as to escape the accidents of variable temperature—of wind, rain, and dust, and, above all, of insects. A greenhouse fully exposed to the sun is best adapted for the purpose, at least as regards hardy and proper greenhouse plants.

Having got them housed, secure a corner where they are least likely to be visited by bees or other insects. The plants which are to yield the pollen, and the plants which are to bear the seed, should be both kept in the same temperature; but where this cannot be managed, pollen from an outside plant, in *genial* summer weather, may be used, provided it can be got; for there is a class of insects which live exclusively on pollen, and devour it so fast after the pollen vessels open, that, unless the plant is under a hand-glass (which I would recommend); it is scarcely possible to get any pollen for the required purpose. To secure against chances of this nature, a sprig with opening bloom may be taken and kept in a vial and water inside, where it will get sufficient sun to ripen the pollen. But here, too, insects must be watched, and destroyed if they intrude. An insect like, but smaller, than the common hive bee, which flits about by fits and starts, on expanded wings, after the manner of the dragon-fly, is the greatest pest, and seems to feed exclusively on pollen. The hive bee, the humble bee, and wasp

give the next greatest annoyance. All these may be excluded by netting fixed over apertures from open sashes or the like. Too much care cannot be bestowed on excluding these intruders, whose single touch, in many cases, might neutralise the intended result; for the slightest application of pollen native to the parent plant, is said by physiologists to supersede all foreign agency, unless, perhaps, in the crossing of mere varieties; and the truth of this observation consists with my own experience. Without due precaution now, the labour, anxiety, and watchfulness of years may issue in vexation and disappointment.

As a further precaution still, and to prevent self-fertilization, divest the blooms to be operated on not only of their anthers, but also of their *corollas*. Remove also all contiguous blooms upon the plant, lest the syringe incautiously directed, or some sudden draft of air, convey the the native pollen, and anticipate the intended operation. The corolla appears to be the means by which insects are attracted; and though, when it is removed, the honey on which they feed is still present, they seem puzzled or indifferent about collecting it; or if, haply, they should alight on the dismantled flower (which I never have detected), the stigma is in most cases safe from their contact.

It will be some days—probably a week or more, if the weather be not sunny—ere the stigma is in a fit condition for fertilization. This is indicated in many families, such as *ericaceæ*, *rosaceæ*, *scrophularinææ*, *aurantiaceæ*, &c., by a vicious exudation in the *sutures* (where these exist) of the stigma, but generally covering the entire surface of that organ. In this condition the stigma may remain many days, during which fertilization may be performed; and this period will be longer or shorter, as the weather is sunny, or damp, or overcast.

In certain families, such as the *Malvaceæ*, *Geraniaceæ*, &c., where the stigma divides itself into feathery parts, and where the viscous process is either absent or inappreciable by the eye, the separation of these parts, the bursting of the pollen, the maturity of the stigma, and all which a little experience will detect, indicate the proper time for the operation, sunny or cloudy weather always affecting the duration of the period during which it may be successfully performed.

As to the proper time and season best adapted for such experiments, a treatise might be written; but here a few remarks must suffice.

As for the season of the year, from early spring to midsummer, I would account the best period; but, as I have just observed, I regard all cold, damp, cloudy, and ungenial weather as unfavorable. On the other hand, when the weather is genial, not so much from sun heat as at times occurs from the atmosphere being moderately charged with electricity, when there is an elasticity, so to speak, in the balmy air, and all nature seems joyous and instinct with life, this, of all others, is the season which the hybridist should improve, and above all if he attempt muling.

The hybridist should be provided with a pocket lens, a pair of wire pinners, and various coloured silk threads.

With the lens he will observe the maturity of the pollen and the

condition of the *stigma*, whether the former has attained its *powdery*, and the latter (if such is its nature) its *viscous* condition. If he find both the *pollen* and the *stigma* in a fit state, he will, with the *pincers*, apply an anther with ripened pollen, and by the gentlest touch distribute it very *thinly* over the summit of the stigma. The operation performed, he will mark it by tying round the flower-stalk a bit of that particular coloured *silk thread* which he wishes to indicate the particular plant which bore the pollen, and at the same time tie a bit of the same silk round the stem of the latter, which will serve till recorded in a note-book, which should be kept by every one trying experiments on a large scale.

It would be out of place here to give even a general outline of the parts of flowers, to show how these differ the one from the other in various tribes of plants. The experimenter, if he is not a botanist, and even though he is partially acquainted with the science, must, from books and observation, make himself familiar with the various organs, male and female, of each separate family of plants on which he means to work, otherwise he will be often puzzled where to find them, or even to distinguish the one from the other.

As for the *time of the day*, it may be done almost any hour from 9 A.M. till 4 o'clock P.M., and with equal success. My other avocations have often limited me to earlier and later hours; but I would suggest from 10 till 2 o'clock as the best time of day, always preferring fair, genial and sunny, to chill, damp, or cloudy days.

On recurring to my note-book for 1850, I find a very favourable state of atmosphere occurred in the beginning of March of that year, when I crossed the *Phyllodoce* (*Menziesia*) *cærulea* with the *Rhodothamnus* (*Rhododendron*) *chamæcistus*, sowed on the 18th June that year, as above noticed. At this time, too, I succeeded in crossing the above *rhodothamnus* with a large-leaved, white-flowered Nepal species of *rhododendron*, the blooms of which were two inches across the limb. But though I ripened that season three or four pods of this last cross, each pod of seed beautifully ripened, all of which I sowed, I cannot assert that any one seed vegetated; and though it is now nearly three years since the seeds were sown, I still preserve the seed-pot. And I may remark here, from my own experience, that two years is not too soon to despair of vegetation even of seeds from abroad, on which, of course, no cross had been effected.

Few seasons have occurred so favourable for the hybridist as the short interval in the beginning of March, 1850, above alluded to. Singularly enough, happening to visit Lord Rosslyn's gardens at Dysart House, on the 1st of June that year, with the late Professor Dunbar, Mr. M'Intosh (the author), and Mr. Sprott, I observed the above *rhodothamnus* marked as crossed. I found it had been crossed at the above period, and with *Rhododendron arboreum*! The seed-pods were then fully swollen, and approaching maturity; but I have not heard that anything has come of them.

It is quite unnecessary to offer any directions as to the results to be

effected. If it is desired to reproduce the larger, finer formed, or higher coloured bloom of a plant having a tall, straggling, or too robust a growth, or having too large or too coarse foliage in a plant without these drawbacks, I need not suggest to select, in another species of the same family, a plant of an opposite character and properties—say of dwarf, compact growth, handsome foliage, and free flowering habit; and if such can be obtained, work with it, making the latter the seed-bearer. Or, if it be desirable to impart the fragrance of a less handsome kind to another more handsome, I would make the cross upon the latter. I cannot speak with certainty from my own experiments how far perfume may be so communicated; but I have some things far advanced to maturity to test it; and I entertain the hope that fragrance may not only be so imparted, but even heightened, varied and improved. Or if it be desired to transfer all, or any valuable property or quality, from a tender exotic species to a native or hardy kind, work upon the latter; for so far as constitution goes, I agree with those who hold that the female overrules in this particular. I would offer this caution to those who wish to preserve the purity of certain flowers for exhibition, especially those having white grounds, not to cross such with high-coloured sorts. I once spoiled a pure *white* bloomed *Calceolaria* for exhibition, by crossing it with a *crimson* sort; all the blooms on those branches where the operation had been performed, being stained *red*, and not the few flowers merely on which the cross was effected.

In this note, already too long, I cannot further illustrate my remarks by recorded experiments in the various tribes upon which I have tried my hand; but I cannot leave the subject without inculcating, in the strongest manner, the observance of the rules I have laid down to prevent vexatious disappointments. If any doubts arise about the cross being genuine or effectually secured, let not the seeds be sown. Three, four, five, and even six years; must oftentimes elapse with trees and shrubby things ere the result can be judged of; and if eventually it prove a failure, or even doubtful, it is worse than labour lost, inasmuch as it may mislead. If there is no great departure from the female parent, the issue is to be mistrusted. It is singular, if well accomplished, how much of both parents is blended in the progeny. Gentlemen eminent as physiologists, have read nature's laws in these matters a little differently from what my own humble experience has taught me, and assigned to the progeny the constitution and general aspect of the *one* parent, while they gave the inflorescence and fruit to the *other*. I have crossed, and inverted the cross, and can venture to give no evidence on the point, except, perhaps, as to *constitution*, to which the seed-bearer, I think, contributes most. A well-managed hybrid should and will blend both parents into a distinct intermediate, inasmuch as to produce often what might pass for a new species. If the leaning be to one more than another, it is probably to the female, though this will not always be the case.

Again, it is asserted that a proper hybrid—i.e., one species which

is crossed with another species, which is separate and distinct from it.—will produce no fertile seeds. This does not accord with my observations. Dr. Lindley has remarked very justly (*Theory of Horticulture*, p. 69), "But facts prove that undoubted hybrids may be fertile." My hybrid, *Veronica Balfouriana* (an intermediate between *V. Saxatilis* and *V. fruticulosa*), seeds, I would say, more abundantly than either parent; and the progeny, from its self-sown seeds, I find to be of various shades of blue, violet, and red, rising in my garden, some having actually larger, finer, and higher-coloured blooms than the parent bearing the seed; and I am familiar with the same result in other things. Yet I am far from asserting fertility in the produce between two members of allied but distinct *genera*—such, for example, as in the *Brianthus*, which I have found to be unproductive, whether employed as the male or female parent. As above conjectured, its parents were far too remote in nature's own arrangement. The hybridist has a field before him ever suggestive of new modes of acting. He may try, as I have done, what may be effected under various tinted glass. My persuasion is, that I effected from a pale yellow a pure white-grounded calceolaria, by placing the plants under blue-shaded glass, by which the sun's rays were much subdued. He may also apply chemical solutions to plants with ripening seeds. Nature, in producing, as it sometimes does, plants with blooms of colours, opposite to those of the parent, must be governed by some law. Why may not this law be found out? For example, under what influences was the first white fuchsia, the *F. Venus Victrix*, produced, the purest yet of all the race, and the source from which all the whites have been derived?

While I have necessarily confined the above remarks to things proper to the flower garden, a wide and still more important field lies beyond. The late lamented Mr. Knight, of Downton, did much in this way to improve our garden fruits and other esculents, and with a success that none else, so far as I am aware, has since attained. Why should not these efforts be extended to the improvement of *agricultural* as well as horticultural productions? Why not carry them into *field* and *forest*, to the creation of new, more useful, and more elegant forms? Nature is boundless, and its objects are endless; and this subject, of all others connected with plants, the most engrossing and exciting. Rich results await the intelligent experimenter; but I would advise none to embark in the pursuit who have not sufficient leisure to devote to it, and, as I said before, who are not possessed of indomitable patience, watchfulness, and perseverance, with a fixed determination not to be fretted or discouraged by frequent failures.

ON THE MANAGEMENT OF HOT-HOUSE PLANTS IN WINTER.

BY A PRACTICAL GARDENER.

ALL plants are naturally subject, in a certain extent, to the vicissitudes of winter, spring, and summer. It follows, therefore, that, in a state of

cultivation, something analogous should be followed by the cultivator in imitation of those changes. To keep tropical plants at a high temperature during winter, when there is little sunshine, is to excite their growing principle at a period when they should rather be at rest; and where such a practice is followed, the plants become drawn up, weak and leafless, in consequence of the perpetual, or, we may say, in this instance, unnatural, stimulus to excitement which the application of heat produces. It appears, from practice and observation, that the temperature of the plant stove should be kept as near to from 60 to 65 degrees as possible during the dark days of winter, for all that is then required is to prevent the plants from being checked or chilled by cold during that season; so that, as spring naturally comes on, a further, but gradual, stimulus may be given them by additional heat, and most particularly during the day.

Water must not be entirely withheld, particularly from some species; but a much less quantity of it is necessary than when the plants are in a growing state, and able to decompose a greater portion of that element. Some species require none for several weeks together; and such may be ascertained by their habits of growth, and are of the herbaceous and bulbous sorts. As these naturally ripen their foliage in autumn (or at whatever other season), and appear to die down to the ground, they should be observed, and collected as near together as circumstances will admit of, and a suspension of watering should then gradually take place, and be continued in till they begin to show signs of vegetation in spring, when they should be again supplied as usual. Some species, which require very little water during winter, do not lose their leaves, nor die down to the surface of the pots; but it is only observation on the part of the cultivator that can direct him in these instances when to water, and when to withhold it. It is (as we have repeatedly observed) one of those cases in horticulture for which rules may be laid down, but not wholly without exceptions, and must entirely rest on the judgment of the cultivator. Steaming the stove during winter is a material feature in the best management of such plants, and should be scrupulously attended to, both to soften the atmosphere of the house, as well as to prevent the increase of insects, particularly the red spider, which is sure to make its unwelcome appearance in a high and dry atmosphere. The most eligible time for steaming the house is in the evening, when the flues are hottest, and it is performed by pouring water on them, which generates steam readily. In time of severe frost, this operation may be performed during the day, or dispensed with for a few days altogether. The quantity of water required to produce a sufficiency of steam depends on a variety of local circumstances, such as the size of the house, the way in which the water is put on the flues, &c.; but it may be safely asserted, that more than is necessary is often used when it is poured on them by random, or done in too hurried a manner. In steaming all sorts of hot-houses, as well as in their whole management, it can only be expected to be well done when the operator feels an interest or pleasure in doing it. A few minutes

more spent in applying it regularly and leisurely over the whole surface of the flues will do more good than sluicing a hogshead of water over the house in a careless manner. During the winter months very little ventilation is required in these structures; for, unless the house be unusually well glazed, and in complete repair, a sufficiency of fresh air will find its way into it between the laps of the glass and other openings; indeed greater care should be had to the exclusion of cold air during winter than to its admission. The plants are, for the most part (as observed above), in an inactive state, and, therefore, not in want of those gases which compose certain parts of atmospherical air, and which are found so necessary for them when in a growing state.

RAISING SEEDLING RANUNCULUSES,

BY A BERKSHIRE CHAMPION.

Not any flower that I am acquainted with composes such a bed of beauty as a well-grown one of this loveliest of all flowers. Their humble growth, exquisite form of flowers, variety of strikingly handsome colours, displayed in self-blooms, or edged, shaded, or beautifully spotted, together combine to produce a floral display beyond comparison.

I am but a ten years' amateur cultivator of ranunculuses, but each successive year I have become more enthusiastic with admiration of their beauties.

I procured, the first season, a packet of seed saved from *first-rate varieties*, by that estimable cultivator the Rev. Joseph Tyso; from that sowing I obtained a considerable number of plants, which have furnished several most exquisite beauties, of first-rate form and colours, and that rank in estimation as *first-rate* by florists in general. I have annually continued to sow seed, &c., and no part of the highly interesting attention required in cultivating flowers, is anything near so delightful as that of raising seedlings, and viewing for the first time the beauties of each successive flower. My method of treatment is as follows:—I must observe, however, that I yearly save seed from plants of my own growing, as well as procure a little elsewhere.

Ranunculus seed is to be procured from semi-double flowers; care should therefore be taken to save it from such as are possessed of good properties, viz., such as have full strong stems, a considerable number of large well-formed petals, and rich good colours, chiefly preferring the darker, but not to the exclusion of the lighter coloured when their properties answer the foregoing description. The seed should remain on the plant till it has lost its verdure, and becomes brown and dry, it may then be cut off, and be spread upon paper, in a dry room, exposed to the sun, that every degree of humidity may be exhaled from it, in which state it should be put into a bag, and preserved in a dry warm room till the time of sowing, otherwise it will be in danger of contracting a dampness, which will soon produce a mouldiness, that will infallibly destroy it. January is the proper time to sow the seed, and in order to prepare it, it must be separated from the stalks to which it is connected, in

the following manner, viz. :—in the first place it should be taken out of the bag and spread thin upon paper, tea tray, &c., and placed before a moderate fire, till it is just warm, and no more; the seed will then easily scrape off, by means of a penknife, but great care must be taken to avoid scraping it off in lumps, or suffering any pieces of the stalk, dried petals of the flower, or other extraneous matter to be mixed with it, which would create a mouldiness when sown, of very destructive consequence; when the seed is scraped in a proper manner it will have the appearance of clean coarse bran, with a little brown or purple speck in the centre of each cuticle, which is the kernel.

When the seed is thus prepared, it should be sown on a shallow frame provided with glasses, similar to those made use of for cucumbers and melons; the soil should have been previously taken out, three feet deep, and spread thin upon the ground till it has been perfectly frozen throughout, in order to destroy any vermin it may have contained. When the pit is filled up again with the frozen lumps of earth, it should remain till the whole mass has thawed, and subsided to its pristine bulk, or nearly so; its surface should then be made perfectly smooth and even, and the seed sown upon it with the utmost regularity, in such a quantity as nearly to cover it; the glasses should be placed over it immediately, and the frame kept closely covered with them, for two or three days, till the seed begins to swell and soften; a little light earth should then be sifted upon it, through a fine sieve, but not sufficient to cover it, this should be repeated once or twice a week, till the greater part of the seed disappears: it is proper to remark that such seeds as happen to be covered deeper than the thickness of a half-crown piece, will never vegetate, and must, of course, inevitably perish. It is necessary that the seed be kept moderately moist by gentle watering with soft water that has been exposed to the sun, but too much moisture is nevertheless injurious.

About the time that the plants begin to appear, it is requisite to stir the surface of the earth with a pin, just sufficiently to admit air, and give liberty to the young plants to pass easily through; this operation should be very carefully performed to prevent breaking off the fibres, or raising and leaving any of the plants out of the earth, because one hour's sun upon such would certainly destroy them.

After the plants are all up, and their two interior leaves appear, more air must be given, by having hurdles or lattice work, substituted for the glasses; waterings must be regularly continued in the manner before described, when the long continuance of dry weather renders it necessary; but fine warm showers of rain are always preferable when they happen in due time.

This kind of management is to be continued till the roots are matured, and fit to take up, which is known by the foliage becoming brown, dry, and nearly consumed. The roots are to be dried and preserved in the usual way, and to be planted the same time as large ones in the autumn, the greater part, or such as have two or more claws, will blow in tolerable perfection the following summer.

CULTIVATION OF INTERMEDIATE STOCKS.

BY AN EXTENSIVE GROWER FOR COVENT GARDEN.

HAVING noticed on a recent number of this magazine, an article on Ten-Week and other Stocks, and as the treatment of the *Intermediate* is not so particularly detailed as it ought to be, I send the following plain detail of the mode I have practised with the *best success* for the last seven years, never failing to have an extraordinary bloom.

In the first week of July, I sow my seed in a bed of rich light earth, in a situation screened from the mid-day sun, where I allow them to grow until the beginning of September, when I put them into sixty-sized pots separately; the soil that I use is a light sandy loam. In these pots they stand until the middle of October, when I repot them into forty-eight sized pots, in the same kind of soil as before; I then place them in a cool frame or pit, where they stand all the winter. I take care to give all the air possible, in order to keep the plants dwarf, and I uniformly dress the plants from all dead leaves, as this is a very essential thing in winter, and I never give more water than is really necessary to keep the plants alive; for if kept too wet they are very likely to damp off. About the middle of March they begin to show their blooming spikes. As soon as I can discern the single ones from the double, I separate them, and plant the single for seed in the kitchen-garden, so that I do not have any single ones in my beds or flower borders. Those plants I require for specimens, I repot into twenty-fours, and place them in the frame, again shading them from the mid-day sun, giving plenty of air and water, as they like to be kept moist at this season. I let them stand in the frame until April, when I plant my bed with those grown in forty-eights, about a foot apart, and in May I have my beds in one sheet of most vigorous scarlet bloom, and which at that early season very greatly adds to the beauty of the lawn; and those, too, growing in twenty-fours, are then in such complete profusion of bloom as amply to repay for the trouble of extra potting.

TREATMENT OF THE GLOXINIA MACULATA.

BY MR. WILLIAM HALE, GARDENER, THURSTONE HOUSE, HAMPFIELD, MIDDLESEX.

In the last month's number of this magazine I observe some excellent remarks on the cultivation of Gloxinias, as greenhouse plants. Reference was also made relative to the *G. maculata*, requiring a higher temperature, but nothing was stated about the management of it. It is a noble species, so robust and firm as to appear of a *shrubby* character. Its neat-shaped flowers, thick in substance, of a French-white colour, with large dark spots inside, produced in spikes from eighteen inches to two feet long, or even more, are both beautiful and ornamental, and amply repay for any attention. I therefore submit to the readers

the method of treatment. I have pursued with the *greatest success*, for the last fifteen years, and without a single failure. Each year I have been repaid with a fine show of flowers. *Gloxinia maculata* requires a strong heat to have the bloom in perfection, and as the general season of its blooming is late in summer, it consequently requires to be *forced* in order to bring it *forward* at the "early part of spring," and thus inducing it to have an *earlier* and *prolonged* period of displaying its lovely flowers.

It is a perennial herbaceous plant, and the stems, leaves, &c. die down every season after it has done flowering; and water must gradually be withheld till the soil is but *barely moist*, so that the tubers may have a period of rest, during which time the pots must be kept in the coolest part of the stove or warmest part of the greenhouse. Sometimes the tubers will push shoots soon after the tops have been cut down after bloom is over; when this is the case, such may be kept through winter in the greenhouse, for if in the stove, they would grow prematurely, and would not bloom satisfactory during winter or early spring, if they bloomed even at all; but being kept in the greenhouse, just alive, they may be potted off singly at the proper time the others are, which have not pushed at all. This operation with all must take place early in February. The plan I pursue is, to turn out the old pot of tubers entire, and carefully separate them. I use a compost of equal parts of good turfy loam, sandy peat, and a mixture of old dried cow-dung, gathered from a pasture field, and leaf mould forms the third part.

A liberal drainage is supplied, and the tubers being laid flat are covered about half-an-inch, one in each large sixty-sized pots, the end of the tuber from which the shoot pushes is raised so as only just to be out of sight, water is given just to settle the soil to the tuber, and the pots are placed in a hot-bed frame, or in the forcing pit, when the former is not ready, and where they have a gentle bottom heat; but little water is given till the shoots push, then it is gradually increased. By the first week in April, the plants require to be shifted into forty-eight pots, to be retained in the former situation, and by the middle of May, they will require to be repotted into twenty-fours, or very vigorous ones into twelve—and the ball of each is kept entire at the repotting. The plants are robust growers, and must be syringed overhead every morning and evening, and the underside of the leaves must be *forcibly* syringed twice a week, or more, to keep away the red spider, which are partial to this plant. I give the plants manure-water twice a week during the latter half of its *growing season*. By this method of treatment I have grown the plant so as to have the floral stem three feet high, and half the length was adorned by the large, charming, wax-like flowers.

In order to have a *bush* of them, I turn out several plants from the large sixty-sized pots into pans that are eight inches deep and eighteen across, placing the strongest plant in the centre, and the others at suitable distances round it. Specimens so large have a noble and

handsome appearance, and these, as well as singly grown, amply repay for every attention given. Just before the flowers at the lower part of the spike begin to open, I usually remove some of the plants into the greenhouse; these continue longer in bloom than those remaining in the stove—in fact, they bloom up to the end of autumn.

DOUBLE BLOSSOMED STOCKS, &c.

BY GULIELMA, OF CLAPHAM RISE, LONDON.

A good deal of inquiry has been made by correspondents relative to the production of DOUBLE BLOSSOMED ten-week and other stocks, and how these were to be obtained to a certainty. I am sorry not to be able fully to satisfy the applicants on this point, but supposing that some remarks on the *origin of doubleness* may be useful to them, I forward the following particulars on the subject, calculating that when the cause is generally understood attention will be additionally given to it in a practical manner.

A highly concentrated state of the sap in plants induces the production of flowers, and before the petals, pistil, and stamens can be formed, it must be perfectly elaborated; thus perfected, they have a higher state of existence than the leaves, which is the lowest, stem petals, after which the pistil and stamens, and finally the fruits. This perfect elaboration can only be obtained by a due degree of light and height, &c.

When, however, double flowers are produced, it is generally by a change of the higher parts of the existence, of stamens and pistils into the lower state of petals, and the more the plant is checked by a poorer soil, and a sparing supply of water for a period, the more likely, by giving luxuriant food and treatment afterwards, to bring back the pistil and stamens to a grosser and lower stage of existence to petals, and thus produce double flowers. The greater the check given, the more powerful will be the effect of, after luxuriance when shifted into a rich soil, placed in due heat, properly supplied with water and every requisite attention, with the greater vigour there will be a flow of crude sap, and the flower is not only then produced larger, but the crude sap has a tendency to lower the state of existence, and the stamens and pistils being higher in the scale of existence, are reduced to the more inferior condition of petals. Sometimes the scale of existence is so far reduced, that what had been originally the nucleus of a branch, but elevated by elaboration acting on the vital energy into the state of petals, stamens, and pistils, is not only reduced to petals and become double, but will shoot again into a branch, as we have had instances with Brown's Superbe, and other roses. The double *Lychnis diurna* has the stamens changed into red petals, and the pistil into green leaves, and the quantity of each greatly increased. In the *Rhododendron* the flowers are produced from the terminal bud of the shoot; if the summer and autumn have been warm,

the buds swells larger, and we have a branch of flowers instead of a branch of leaves the ensuing spring; but it is always difficult to say, till the bud is evolved, whether we shall have leaves or flowers. In raising double or full flowers from seed, therefore, we should carefully guide our attempts by experience; in procuring the seed, we must get it from the *most double flowers we can*, as the progeny always bears more or less resemblance to the parent. In the Dahlia the flower is not, strictly speaking, full; it belongs to the compound class, in which a great number of florets are arranged on one common receptacle; in single dahlias and other flowers of this class, the ray or outer row of florets has the petals fully evolved and coloured; in the florets of the centre or disk, the petal is only in the state of a small tube, inside of which the stamens are situated. Rich cultivation forces these tubes to assume the state of coloured petals; sometimes tubular, as in the quilled dahlias, and sometimes flosculose or flattened, as in others; sometimes the stamens are changed into petals, sometimes they are abortive, but generally both these and the pistillum are unchanged, and hence there is little difficulty in getting seed from dahlias. Plants that are full of double flowers at one time, when the plant is vigorous, will change and come more single when checked by bad weather, or when the plant begins to ripen and get woody. To return to the raising of seedling double flowers. Roses, Pinks, Carnations, and Ranunculus change the stamens only into petals, and sometimes these are only partially so in very full flowers, and seed is comparatively easy to be obtained from them; we should, as before observed, select from the fullest and best flowers. In the Anemone the pistils are changed into petals, the stamens unchanged; seed of these can, therefore, only be obtained from flowers not perfectly full, or by impregnating flowers nearly single, with a tendency only to fulness, with the anthers of full flowers. In Stocks and Wallflowers both stamens and pistil are changed into petals; seed cannot, therefore, be had from full flowers in these sorts, and the only resource we have is to save seed from those in which a tendency to fulness has commenced, by having a petal or two more than usual. In growing Stocks from seed they will be more likely to be double, if the plants are checked first by a deficiency of nourishment, whether of water or manure, and afterwards excited to luxuriance by a plentiful supply; and the greater the change, the greater the likelihood of success. Old seed, or seed dried, gives a check; we have had instances of old neglected seed, which had been reckoned very inferior when the seeds were fresh and new, come almost every plant double, when a little had been left over and sold when old. The seed for raising double flowers of any sort can *hardly be too old*, if it will grow at all; and the weak plants, first stunted and then luxuriated, will be found most successful; the seed should be sown on heat, and the weak plants *most cared for*. After flowers have once been produced double or full, the habit of coming double will be retained, if kept so by rich cultivation. When any variety has begun to sport, the plants should be raised off those individuals which have

not yet sported, as the sporting habit might become fixed; and this should be carefully guarded against, by propagating from those roots that show the fullest flowers. The double China Asters, Feverfew, Rockets, Daisies, &c., come double in the same way as Dahlias. The double Snapdragon is similar to the stock. Campanula, Cistus, the Thorn, and most other double flowers, are similar to the Rose. Thus, by attention, have many of our English plants been induced to produce double flowers, and so, no doubt, would be the result with others, both domestic and foreign, if attention was duly paid to the subject.

DESTROYING INSECTS.

BY MR. JAMES ROBERTS, GARDENER, WREST LODGE, ALLENDALE.

THE sudden and very opposite kinds of weather, for which the present season has been remarkable, has tended to the more than usual increase of insects that attack in-door plants. For many years I have most successfully escaped the ravages of those enemies by either wholly preventing their beginnings, or at the early stage of their attacks I routed or destroyed them. The following remarks on the subject I forward you, hoping they will be inserted in the AUGUST NUMBER, and thus prove of service to some who are contending with their adversaries.

The application of the liquids will not injure the foliage when applied as here directed.

In all the recipes for destroying the red spider which I have seen, sulphur is an ingredient; this, in its crude state, will not unite with the liquids used for that purpose, and therefore it can have little or no effect, except when applied as a wash on the heated flues of a house. In order to make it unite with soapsuds, tobacco water, and other liquids usually made use of for destroying insects, it must be converted into a sulphuret, by boiling it with lime or an alkaline salt, as in the following mixture, which expeditiously and effectually destroys the red spider, by merely immersing the plant or part infested in the mixture.

Common soft soap, half an ounce; sulphuret of lime, one ounce by measure, or two table-spoonsful; soft water (hot), one ale quart. The soap and sulphuret to be first well mixed with an iron or wooden spoon in the same manner as a mixture of egg and oil is made for a salad; the hot water is then to be added by degrees, stirring the mixture well with a painter's brush, as in making a lather, by which means an uniform fluid will be obtained like whey, without any sediment, which may be used as soon as it is cool enough to bear the hand in it.

This mixture will destroy every insect usually found in the greenhouse by mere immersion, except the coccus, or scaly insect, which adheres so closely to the stem or under side of the leaf, that the mixture cannot reach its vulnerable parts; therefore, in this case, the mixture must be applied with a brush that will dislodge the insect. If the mixture be put into a wooden bowl or any other shallow vessel, small

plants in pots, and the leaves and branches of larger ones, and of fruit trees, may be easily immersed in it by pressing them down with the hand.

The above mixture will not destroy the black aphides of the cherry-tree, nor the green aphides of the plum-tree, by immersing the leaves and branches of it, there being an oiliness on these insects which prevents its adhering to them. It will destroy them by applying it with a brush, but this is too tedious a process. It has been recommended by writers on horticulture to wash these and other fruit trees against walls, before the leaves and buds appear, with mixtures which cannot be safely applied after, for which purpose the above mixture, with the addition of spirits of turpentine, is likely to succeed as well as any other, or better; but I have not yet had an opportunity of giving it a trial. Half an ounce by measure of spirits of turpentine being first well mixed with the soap, and the sulphuret and water added as before; or the wash may be made stronger by adding twice the quantity of each ingredient to the same quantity of water.

For destroying slugs and worms there is no recipe so simple, attended with so little trouble, and, when properly applied, so effectual, as common lime-water. The plants on which the slugs are found must be watered with it twice at least, at an interval of three or four minutes. If you place three or four slugs on the ground, and pour lime-water on them from a watering-pan you will soon perceive them throwing off a kind of slough, and after that crawling away; but if you sprinkle them again with the lime-water they will not be able to throw off another slough, and soon die after the second operation. When a person has, therefore, watered as many plants as takes up the time of three or four minutes, he must turn back to the place where he began, and water them again.

Lime-water for this purpose may be easily made so as to be always ready. Into a trough, containing about 55 gallons of water, throw in two or three shovelful of lime, stir it up three or four times on that day, and the next day the liquor is clear and fit for use, and will continue to answer the purpose for some time without adding any fresh lime by stirring it up again before it is used, and let it settle. If the lime-water be of sufficient strength it will destroy the large grey snail with twice watering, and all worms that are out of the ground at the time of watering, and it will not injure the most tender plant when used in a clear state.

MISCELLANEOUS.

THE METROPOLITAN HORTICULTURAL EXHIBITIONS OF 1854.—Six of these great meetings have been held during May and June. The specimens shown in the immense number of collections were, as a whole, superior to those of any previous years; a poor specimen of either plant, flower, or fruit, was not among them. To give, however, a full detailed account of all, would be to fill our pages with this one

subject; and there would be a repetition of the same collections of plants—as many of them which had been seen at Chiswick, were shown at the Regent's Park Botanic Garden—and that, not only once, but nearly the whole of some collections appeared a second time at the same place. We shall therefore give, as we have done the last two years, a description of the principal collections of each class, that our readers may see what are still the *leading plants* for exhibiting, and of the *new plants*, also noting other things which may rank as curiosities.

CHISWICK, MAY 13th.—*Collections of 20 Stove and Greenhouse Plants.*—1st. Mr. Green, gardener to Sir E. Antrobus, Bart., of Cheam. *Aphelexis macrantha purpurea*, *Aphelexis rosea*, *Azalea Iveryana*, *Azalea variegata*, *Daviesia latifolia*, *Dillwynia ericifolia*, *Erica depressa*, *Erica propendens*, *Eriostemon intermedium*, *Franciscea acuminata*, *Franciscea confertiflora*, *Gardenia Fortuni*, *Gompholobium grandiflorum*, *Gompholobium barbigerum*, *Ixora crocata*, *Leschenaultia formosa*, *Pimelea Hendersonii*, *Pimelea spectabilis*, *Polygala acuminata*, *Polygala cordifolia*.

2nd. Mr. Gilham, gardener to R. Scott, Esq., of Leyton. *Allamanda cathartica*, *Allamanda neriifolia*, *Aphelexis macrantha purpurea*, *Azalea double-red*, *Azalea Duke of Devonshire*, *Chorozema varium nanum*, *Clerodendron Kœmpferi*, *Epacris paludosa*, *Erica Cavendishii*, *Erica vestita alba*, *Eriostemon buxifolium*, *Eriostemon neriifolium*, *Ixora coccinea*, *Leschenaultia Baxterii*, *Pimelea decussata*, *Pimelea Hendersonii*, *Polygala Dalmaisiana*, *Statice Holfordi*, *Vinca oculata*, *Vinca rosea*.

The following additional plants to the above were exhibited in other collections of this class:—*Aphelexis humilis*, *Azalea Duke of Devonshire*, *Azalea triumphans*, *Boronia spathulata*, *Cyrtocera reflexum*, *Dracophyllum gracile*, *Epacris grandiflora*, *Erica ventricosa densa*, *Eriostemon scabrum*, *Pimelea decussata angusta*, *Polygala oppositifolia*, *Boronia tetrandra*, *Chorozema Lawrenciana*, *Erica Alberti*, *Erica Brunoides*, *Leschenaultia Baxterii*, *Oxylobium pultenceæ*, *Pimelea linifolia*, *Tetralthea verticillata*, *Azalea laterita*, *Ixora coccinea*, *Polygala cordifolia*, *Stephanotus floribunda*, *Adenandra speciosa*, *Chorozema Henchmanni*, *Medinella Sieboldi*, *Hoya bella*, *Hoya carnosa*, *Medinella speciosa*, *Medinella magnifica*.

Any person desirous of forming a collection of valuable flowering stove and greenhouse plants may safely rely on the above being suitable.

INDIAN AZALEAS.—These filled up a large space, and displayed an unrivalled blaze of floral beauty, producing an effect we cannot describe.—1st. Messrs. Lane, of Berkhamsted for 12 plants. *Perryana*, *exquisita*, *Fielder's White*, *conspicua purpurea*, *speciosissima*, *triumphans*, *Double-red*, *alba magna*, *grandis*, *mirabilis*, *punctata*, and *Broughtonia*.

2nd. Mr. Green, of Cheam, for 12 plants:—*Symmetry*, *laterita*, *coronata*, *Gledstanesi*, *decora*, *optima*, *Perryana*, *Rawsoni*, *variegata*, *triumphans*, *Præstantissima*, and *sinensis*.

The following were also shown in other collections:—Iveryana, Dilecta, Murrayana, Minerva, Leeana, and Grieswoodiana. The variety Iveryana, white with rosy purple, or violet stripes, was particularly beautiful, as well as being large and of fine form. We will give a *descriptive* list of all the finest kinds of Azaleas in our next number, as a guide to purchasers; all the above, however, are first-rate, and very distinct, adapted for any collection.

PELARGONIUMS.—The season being backward, but few were shown; the following were fine:—1st. Mr Dobson, of Isleworth, for 12 plants. *Purpurea*, *Ambassador*, *Vulcan*, *Rosamond*, *Delicatum*, *Vanguard*, *Gulielma*, *Arethusa*, *Governor*, *Glowworm*, *Harriot*, and *Leah*.

FANCY CLASS.—1st. Mr. Mockett, for 6 plants:—*Richard Cobden*, *Cleopatra*, *Defiance*, *Jehu Improved*, *Princess Alice Maude*, and *Captivation*.

2nd. Mr. Gaines, of Battersea, for 6 plants:—*Signora Castoni*, *Defiance*, *Queen Superb*, *Madame Rosati*, *Delicatum*, and *Electra*.

FINE SINGLE SPECIMEN PLANTS.—*Gompholobium polymorphum*, *Ixora coccinea*, *Adenandra fragrans*, *Erica depressa*, *Azalea Iveryana*.

LISIANTHUS RUSSELLIANUS.—*Clericus* may grow and bloom this beautiful flowering plant in splendid perfection by the following method of treatment. Sow the seeds in April, in fine soil, and place the tops of the pots very near the glass. As soon as the plants are up enough to transplant, remove them so as not to break a single fibre, especially the point of the principal, which is tap-rooted. The pots must be half filled with *Sphagnum* moss, then filled up with good loam and peat, or leaf mould, equal parts. The pots then to be plunged up to the rims in a cucumber bed, and as near to the glass as convenient. As they require larger pots, the same plan is to be adopted till they show for bloom, when they may be placed in the plant-house.

GREEN FLY.—My Roses in pots are much infested with green fly. How can I soon and effectually destroy them, and not injure the young shoots? asks an Inquirer lately; I therefore state, pursue the following methods. From the *tobacconist's*, tobacco-water may be procured at a shilling per gallon; in it dip the shoots, and the insects will immediately perish; it does not in the least degree injure the plant. If to sprinkle over the heads of plants indiscriminately, the tobacco-water should be diluted, by mixing with it an equal quantity of water. Or bruise a quantity of common laurel leaves, then boil them, and when the decoction is cool, use it as recommended for tobacco-water. Care must be taken to have the liquid applied also to the *under side* of the foliage.—L.

MANAGEMENT OF DIPLADENIAS.—The most suitable soil for these twiners is good *fresh turfy loam*, *leaf soil* and *fibrous peat*, in about equal proportions, with a liberal admixture of sharp sand and lumpy pieces of charcoal to keep the mass open and porous. It is a good practice to slightly bake the leaf soil before using it, so as to destroy any worms it may contain, which are very mischievous to plants in bottom-heat. About the middle of January, turn the plants out of the pots and shake

away a part of the soil, at least as much as will admit of a portion of new compost if the plant be put again into the same pot, or at most one of a size larger. At this time cut back the lateral shoots, so as only to leave one or two buds on each. After potting, place the plants in a pit or house where the atmosphere is kept *warm and moist*, and to have *full light*. It must also be plunged in a brisk *bottom-heat*, say from 70 to 80 degrees. It must also be syringed overhead every morning and evening, and when the foliage is produced the leaves must be syringed at the under side once a day, to keep off the red spider, to whose attacks these plants are liable. When the plant begins to push shoots, increase the supply of water at the roots in proportion to growth. As the shoots advance, keep them regularly tied to supports, in order to prevent their being broken; and, as soon as the roots get good well hold of the soil, shift into the flowering pots, which should not be larger than 12-inch ones. Return the plants after shifting to a brisk bottom-heat, and maintain a warm moist atmosphere, to induce active growth. Decide upon the method of training to be adopted at once, and keep the shoots regularly tied in, placing them sufficiently far apart to insure the production of strong short-jointed wood, and to induce the formation of side shoots, upon which the flowers are borne. Whilst it may be desirable to insure active growth, give a liberal supply of manure water to the soil, and syringing overhead and maintaining a moist warm atmosphere; but avoid much shading, the only result of which is to induce the production of soft spongy wood, from which flowers can hardly be expected. When a good-sized plant is obtained, unless it begins to show for flowering, give less water at the root, and a freer circulation of air, with full exposure to sunshine, which will check the tendency to growth, and assist in inducing the formation of flowers. The specimens may be removed to a close part of the conservatory while in bloom, where they will flower in great perfection for some two months, but care must be observed to prepare them for the change by rendering it gradual. And specimens intended to be removed to the conservatory while in flower should be started into growth early in spring, so as to have them in flower in June, in which month the temperature of the conservatory will, with a little care as to placing them in the warmest corner, be suitable for them; but plants blooming late in autumn must be afforded the temperature of an intermediate house. Give a liberal supply of manure-water to the soil during the blooming season, and carefully guard the blossoms from the effects of damp, by which they are very easily injured. When the beauty of the specimens is over, remove them to a light airy part of a house, giving a sparing supply of water to the soil; and when the wood is well ripened, discontinue the application of water altogether during the period of rest, which should not be less than six weeks or two months. By annually shaking the greater portion of the old soil from amongst the roots, so as to allow of repotting in fresh soil, trimming away any unhealthy roots, and properly cutting back the shoots, the specimens will last for several seasons.—(*Magazine of Horticulture and Botany*.)



IN THE FLOWER GARDEN.

IF the weather continue hot and dry, it will be highly necessary to administer copious supplies of water. This should be done towards the evening of each day, because the plants have then time to absorb the water gradually, and appropriate such portion as contributes to their well-being. It is only in extreme cases that water should be given in the morning, because it is then so quickly exhaled from the soil, as well as the leaves, that its refreshing and nutrimental properties are almost wholly wasted. A sprinkling over head very early in the morning will always benefit the plants, by assisting them to sustain the hot and dry winds. Rain-water is best, or that from an exposed pond or tank. Where beds of plants have been repeatedly watered through a rose, the surface of the soil will probably have become *crusted* and almost *impervious* to moisture; consequently, they ought to be stirred over occasionally with a small fork. A few annuals, as *Mignonette*, &c., may now be sown to bloom in the autumn, also biennials to bloom next year.

FLOKISTS' FLOWERS.—*Auriculas* and *Polyanthus* should be kept in the shade. At this season of the year the plants are often attacked with green fly; dip the plants in a solution of tobacco-water. *Tulips* will have perfected their growth, and should now be taken up. *Ranunculuses* will require to be taken up as soon as their foliage has become withered and dry. *Pinks* may still be piped. *Carnations* and *Picotees*: as the pods are fully formed and ready to open, secure them round with a ring of India-rubber, gutta-percha, or bass, to prevent their bursting on one side. When blown, they should be shaded. Never suffer the plants to flag for want of water. Proceed with layering. *Dahlias* will require *thinning out* freely as they advance in growth. If sprinkled overhead with soft water late in the evening, with a fine rose or syringe, their luxuriance will be greatly promoted. *Pelargoniums* that have shed their flowers should be cut down, disrooted, and potted in smaller pots, keeping the plants for a week in a close frame, to assist them in developing their new shoots, and cuttings may be put in, one in each 60-sized pot, or prick them in a border, and pot as soon as rooted. *Roses* may now be budded; moist weather being best for the operation. It is of importance that there should be a resemblance between the bud and the stock, as to the vigour of vegetative growth, in order to ensure a successful result: If a Rose of slow development is budded on a rampant briar, and all the strength of the latter is turned into the parasitical stranger, health cannot be maintained, nor will a freely vegetating Rose submit to be impeded in its progress by a sluggish stock. Thin away surplus branches from all stocks not budded as early as possible, not to wait a day even, but get the branches strong and healthy.

IN THE FORCING STOVE.

Where stove and greenhouse plants afford suitable cutting, propagation must now be pursued; as, generally speaking, it can be practised with the greatest success in the early rather than in the latter part of the year. It should be remembered that the propagation of most plants is facilitated by the employment of bottom-heat and bell-glasses. Stove plants will derive great advantage from a partial shading during the glare of the day, and will be less liable to injury from drought. Many plants will require shifting, such as *Justicias*, *Clerodendrons*, &c. Give plenty of water at the roots, syringe often in the evening, and keep the floors of the house and every part damp, to assist in maintaining a humid atmosphere. Bulbs of *Amaryllis*, &c., should be put together in a pit or frame, where they will be near-

the glass, and where the influence of the sun, with a gradual diminution of water, will mature them. Never permitting the foliage to flag is a good criterion as to the quantity of moisture plants require; keep as near that state as possible.

IN THE GREENHOUSE, &c.

As a free ingress of air must necessarily be permitted during fine weather, its rapid circulation, conjoined with active solar heat, must cause a rapid evaporation both from the plants and soil; hence there exists a necessity of watering and syringing frequently. Encourage the growth of Azaleas and Camellias by keeping them comparatively close (with shade during sunshine), and supplying them liberally with moisture administered by the syringe. Propagate Roses by cuttings from those plants which have been forced, and place the plants in a rather shady situation, in order that they may have a period of rest for a few weeks. Calceolarias that have ceased blooming should be repotted; cut off dead tops, place the plants in a situation where they can be shaded from hot sun, admitting it morning and evening. Seed should be sown, so as to have the plants strong, to endure winter; such will bloom next season, and be much more vigorous than plants raised from cuttings. Cinerarias also that have done blooming should have the tops cut off, and fumigated in a close frame, as they are often affected with green-fly; after which the plants should be turned out of the pots, and planted in a somewhat shady bed of good soil, in the garden. Sow seed now; the young plants will bloom early next spring. Epacrises, Ericas, &c., now done blooming, may be cut in, to render them bushy. Chrysanthemums should now have the leads stopped, to cause the production of side shoots, and make the plants bushy and dwarf. Procure a stock now of any required. Greenhouse plants placed in the open air in pots should have frequent waterings at the under side of the foliage, to destroy or keep down green-fly.

BRIEF REMARKS.

ON WALLFLOWER AND STOCKS.—It will greatly oblige a great many readers of your most useful work to inform them which is the best way of protecting the double wallflower and stocks from the frosts in winter, as most of us are partial to these beautiful flowers; and most of us would like to know your opinion which kinds of stock are the finest bloomers, and which come the most double, also which is the best time to sow the seed of stocks to bloom in the best season. It will greatly oblige to give us information in your next number.

R. H. P.

[Our correspondent has not been explicit enough as to his purposes: we beg, however, to inform him that to have early blooming stocks the tribe of Brompton's furnish such, and to have later the Ten Weeks'. The former are biennial, enduring two years, the latter annual, or enduring only one year. The Brompton stocks should be sown the first week in June, and when strong enough be planted out; if to be out of doors through winter, put them off where to bloom, and protect in winter by furze branches, pricked closely round and tied together, laying four or six inches of dry leaves over the roots, and surrounded by the furze branches, to keep the leaves in proper bounds. Where there is the advantage of a cool but dry frame, some potted off at first, in small pots, and at the approach of winter placed in the frame, or the pots sunk in the ground, close under a well-sheltered south-aspected wall, &c., will generally be preserved in any part of this kingdom. Such should be transplanted, entire, by the end of March, in the situations for blooming. There are a variety of colours. The Giant is a noble red one, as is the Emperor too, both red and white kinds. We have seen spikes of flowers two feet and a-half long, and a separate blossom two inches across. These come into bloom, as do the other varieties, at the end of April, and continue to a late period in summer. The annual stocks, viz., Ten Weeks', Russian, German, &c., are of course raised by an early spring sowing, and transplanted out as early as possible; these come into bloom by the middle of June, and continue to September. There are numerous colours of these tribes, all well deserving cultivation. Wallflowers are readily preserved uninjured, in the same way as recommended to be adopted with Brompton stocks.—AN OLD CULTIVATOR.]

COMPOST FOR BEGONIAS.—In answer to the inquiry by MARIA, I forward the description of a compost I use with the best success. In it the plants grow just vigorous enough to produce a *profusion of bloom*, and not, almost wholly, large foliage. I use equal parts of turfy loam, sandy peat, and *well decomposed cow dung*; this latter may be obtained in its *dry state* from a meadow, and rubbed into dust. I use a liberal drainage and a *liberal sprinkling* of bits of charcoal in the soils. Grown in this, with due attention to watering and syringing over head—morning and evening—in their growing season, they will flourish to satisfaction. After blooming, water must be *gradually withheld*, so that during *rest* the soil must be *just moist*.—A NOBLEMAN'S FLOWER GARDENER.

P.S.—I have the following new Begonias now in *fine bloom*:—*B. Prestoniensis* in the greenhouse, with a profusion of large brilliant blossoms of a rich scarlet-red colour. It ought to be in every greenhouse or sitting-room window. So does *B. Martiniana*, with its large, deep rosy-pink flowers—in the green-house also. *B. miniata*, the habit is that of *B. fuchsoides*, but it blooms *much more* profusely. The flowers are borne in large drooping corymbs, of a rich orange-scarlet colour.—This will do in either green-house or stove. *B. Thwaitesii*: its blossoms are not quite expanded, the leaves are large, heart-shaped, and the upper side is beautifully marked with a metallic silvery blue, in the way of *Cissus discolor*, and the under side is a rich crimson red and purple in shades. *B. zanthina* is a vigorous plant, noble foliage, deep green, and underneath a ruby-red. The flowers are large, of a *rich yellow* colour, very distinct and fine. *B. cinnaburina*: it is a vigorous grower, large light green leaves, and its paniced heads of large blossoms, of a rich orange-colour, are very fine. The last three sorts do best in a *stove*, and are highly entitled to a place in every one.

ON CLERODENDRONS.—Last August, having four strong plants of *Clerodendron fragrans* (or *Volkameria fragrans*), and a good plant of *C. splendens*, I placed the plants of *fragrans* around the *splendens*, and inarched four branches of the latter upon the former; they soon united, and grew vigorously, more so than even the parent plant, and, I doubt not, but will furnish me with extra fine specimens of this beautiful flowering climber. I think this branch of inarching weakly kinds upon more vigorous ones is not attended to as its advantages entitle it.—J. M'INTOSH.

LUCULIAS.—A country clergyman is informed that these plants require similar treatment to the Camellias. They must not be cultivated in the stove more than a few months in the year, but after the *spring growth*, they should be *hardened off*, and towards autumn be placed "out of doors;" they will then bloom fine *indoors*, and not be likely to perish, as is so often the case when not treated as above.—AMICUS.

FLOWERS AND PERFUMERY.—Some idea of the importance of perfumery as an article of commerce may be formed, when it is stated that one of the large perfumers of Grasse, in France, employs annually 80,000 lbs. of Orange blossoms, 60,000 lbs. of Cassie flowers, 54,000 lbs. of Violet flowers, 20,000 lbs. of Tuberoses, 16,000 lbs. of Lilac flowers, besides Rosemary, Mint, Lavender Thyme, Lemon, Orange, and other odorous plants, in like proportion. Flowers yield perfumes in all climates, but those growing in the *warmer* latitudes are, it seems, the most prolific in *their odour*, while those from the *colder* are *sweetest*. Though many of the finest perfumes come from the East Indies, Ceylon, Mexico, and Peru, the south of Europe is the only real garden of utility to the perfumer. Grasse and Nice are the principal seats of the art. From their geographical position, the grower within comparatively short distances, has at command that change of climate most applicable to bring to perfection the plants required for his trade. On the sea-coast his Cassie grows without fear of frost, one night of which would destroy all the plants for a season; while nearer the Alps his Violets are found sweeter than if grown in the warmer situations where the Orange tree and Mignonne bloom to perfection. England, however, can claim the superiority in the growth of Lavender and Peppermint; the essential oils extracted from these plants grown at Mitcham, in Surrey, realise eight times the price in the market of those produced in France or elsewhere, and are fully worth the difference for delicacy of odour.

SLEEP OF PLANTS IN THE ARCTIC REGIONS.—Being much interested with the article on the "Sleep of Plants," by Mr. Peter Makenzie, which appeared in the June Magazine, I send these additional particulars on the subject, for the August Number.

"Mr. Seemann, the naturalist of Kellett's Arctic Expedition, states a curious fact respecting the condition of the vegetable world during the long day of the Arctic summer. Although the sun never sets while it lasts, plants make no mistake about the time when, if it be not night, it ought to be, but regularly as the evening hours approach, and when a midnight sun is several degrees above the horizon, droop their leaves and sleep, even as they do at sunset in more favoured climes. "If man," observes Mr. Seemann, "should ever reach the pole, and be undecided which way to turn, when his compass has become sluggish, his timepiece out of order, the plants which he may happen to meet will show him the way; their 'sleeping-leaves' tell him that midnight is at hand, and that at that time the sun is standing in the north."

TROPEOLUM SPECIOSUM.—Some years back, you gave a figure of this plant. I procured one, kept it in a warm greenhouse, but could not obtain a flower. I read in a subsequent number of this magazine, that it flourished when grown out doors against a north-aspected wall. I therefore put out two good plants, one against a north-aspected wall, and the other exactly faced north-west. Both plants flourished, but especially so the one against the north-west wall. It is more vigorous, and a much greater profusion of its lovely brilliant scarlet large flowers. In winter I cover the ground for several feet with six inches thick of dry leaves, which are removed at spring.—A MIDLAND COUNTY AMATEUR PLANT-GROWER.

ON SHRUBS, &c.—I should feel very much obliged if any of your numerous correspondents would give me some information on the following points, in an early Number:—

The management of turf, especially in confined and shady situations.

The shrubs and flowers which will do best with the minimum of sun.

Those that will do without any sun at all, as under a north wall.

What will thrive best in a small and confined garden, sheltered by high walls in every direction, and rather damp, though in a high situation.

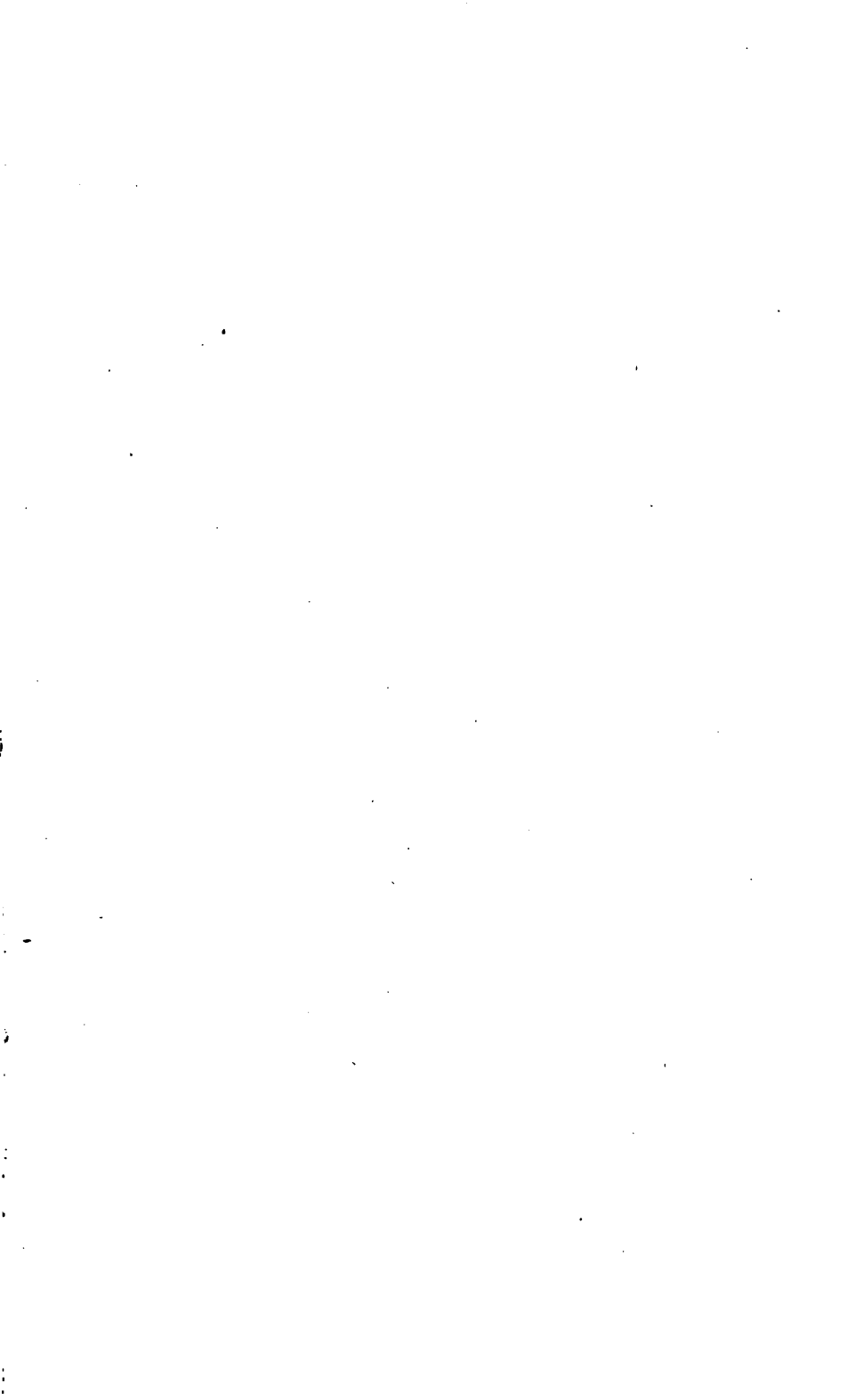
For what shrubs and flowers the black marsh, or bog earth, may be made available, besides American bog plants; and if it may be added to loam, to form a compost for Geraniums or other flowers.

Also, if there be any substitute for the sand recommended for striking cuttings of various kinds.—A CONSTANT SUBSCRIBER.

DESTRUCTION OF HEARTSEASE BY MILDEW.—I am an admirer of the Heartsease, and have cultivated them for some years; but, for the last three, I have experienced considerable vexation from losing several of my best kinds, from a kind of white mildew with which they have been affected, which spoils the bloom and ultimately kills the plants. I am inclined to think it is an epidemic disease, as several of my neighbours' Heartsease have suffered from the same cause. Is the disease hereditary? I mean, will seedlings raised from plants affected be more likely to be attacked than others raised from plants not diseased?

From your invariable kindness in inserting the queries of correspondents, I have been induced to ask the favour of any suggestion you, or some reader, may be able to give as a remedy for the above disease, by which you will confer an obligation on several growers in my neighbourhood, Leicester.

[Dusting the plants overhead, and the under side of the foliage too, with common sulphur, is a perfect remedy. It costs but a trifle, and is readily done. In old, stiffish soil, and confined, damp situations, the plants are liable to be affected with mildew. Each new plantation should be put in a *fresh*, well-enriched, loamy (if yellowish, the better) soil, on an open substratum. If a new plantation is made from the offsets of diseased plants, they should be well dusted with the sulphur, and planted in the manner above stated. If there should be appearances of an attack by mildew, the earliest attention to destroy it should be given, or it will rapidly spread. We hope some of the general cultivators of Heartsease will give us the results of their experience, in order more fully to meet the wishes of our correspondent. The disease is not inherent in the seed.—M.P.]





Verbena, Souvenir de Jane Hanson



" The tiny heath-flowers now begin to blow ;
The russet moor assumes a richer glow ;
The powdery bells, that glance in purple bloom,
Fling from their scented cups a sweet perfume.
While from their cells, still moist with morning dew,
The wandering wild bee sips the honied glue :
In wider circle wakes the liquid hum,
And far remote the mingled murmurs come."

ILLUSTRATIONS.

VERBENA SOUVENIR DE JANE HANSON.

" This beauteous family to cares unknown,
Were born for pleasure and delight alone,
Gay without toil, and lovely without art,
They spring to cheer the sense and glad the heart."

THIS very lovely VERBENA was raised by Mr. P. F. Croft, of Philadelphia, in the United States of America, from whence a figure of it has been sent. It is of first-rate excellence. Its form is nearly a *complete circle*, edges without notch, and surface nearly even, slightly cupping to the outside. Of the light-coloured Verbenas, it far exceeds all others, nor do we know any other Verbena equal to it for form and beauty. It merits a place in every flower garden. The heads of flowers are generally much larger than what the figure is which we now give. We understand it is one of the most charming varieties for bedding purposes, and produces a beautiful contrast with the high-coloured ones.

Every successive season we have additional beauties, as well as a closer approximation to perfection in form, in this most valuable and lovely genus. So universally are our gardens ornamented with Verbenas, that were they now to become extinct we should have a vacancy that no other plant we possess could adequately make up for such a deficiency. We feel rather more than an usual interest in admiration

of this lovely section of Verbenas, from the circumstance of a member of our own family having obtained the first *Verbena melindres* brought to this country, and under whose care it first bloomed. Beautiful as it was, we did not anticipate that it was the first of an almost numberless family of varieties, which should not only surpass it in magnificence, but in superiority of size and shape, and be the object of *universal* admiration; for who is there that see the lovely Verbenas which add so much to the beauty and ornament of our flower gardens at the present day that are not pleased with them. It is not, however, generally known that the Verbena was held in high estimation and venerated by the ancients of our own and other countries. The very name of the *Vervain* (Verbena) carries our thoughts back to the darkest ages of superstition, and to the religious customs of the ancient heathens: and although they were in almost all particulars ridiculously absurd, yet their antiquity and intimate connection with our own forefathers invest them with a claim upon our particular attention. Whilst it was held in *reverential regard* by them, and we so much admire the beauties of the improved race, we are taught the lesson, that it becomes us to feel grateful that we live in a brighter day, illumined by the mild rays of *Christianity*.

The derivation of the name VERBENA is somewhat uncertain; it originally signified any herb used to decorate ALTARS for religious purposes; and this being so universally employed, received the appellation of THE VERBENA.

The Verbena sustained a considerable part in the impositions which were practised upon the credulous in ancient times, and hence it is so frequently mentioned in profane history. The Magi (termed Wise Men) of the ancient Elamites or Persians, made great use of this plant in their worship or adoration of the sun, always carrying branches of it in their hands when they approached the altar. The magicians also employed the Vervain in their pretended divinations, and affirmed that, by smearing the body over with the juice of this plant, the person would obtain whatever he set his heart upon; and be enabled to reconcile the most inveterate enemies, make friends with whom he pleased, gain the affections and cure the diseases of whom he listed. When they cut this plant it was always done when neither the sun nor moon was visible, and they poured honey and honeycomb on the earth as an atonement for robbing it of so precious an herb.

The Greeks called it THE SACRED HERB, Juno's tears, and Dove-wort; and it was with this plant only that they cleansed the festival table of Jupiter before any great solemnity took place, and hence, according to Pliny, the name of Verbena is derived. It was also one of the plants which was dedicated to the Goddess of Beauty. Venus the victorious wore a crown of Myrtle interwoven with Verbena.

The Romans continued the use of this plant in their sacred rites, sweeping their temples and cleansing their altars with it, and sprinkling holy water with the branches. They also hallowed or purified their houses with it to keep off evil spirits. Their ambassadors or heralds at

arms, wore crowns of it when they went to denounce war or give defiance to their enemies ; and which is thus noticed by Drayton :—

“ A wreath of Verbena heralds wear,
Amongst our garlands named,
Being sent that dreadful news to bear,
Offensive war proclaimed.”

Virgil mentions it as one of the charms then in use :—

“ Bring running water, bind those altars round
With fillets, and with Vervain strew the ground.”

The Druids, both in Gaul and in Britain, regarded the Vervain with the same veneration which they bestowed on the Mistleto, and like the Magi of the East, they offered sacrifices to the earth before they cut this plant in the spring, which was a ceremony of great pomp. Pliny tells us that the Druids made use of it in casting lots, and in drawing omens, and in other pretended magical arts :—

“ Dark superstition’s whisper dread
Debarr’d the spot to vulgar tread ;
‘For there,’ she said, ‘did fays resort,
And satyrs hold their sylvan court,
By moonlight tread their mystic maze,
And blast the rash beholder’s gaze.’”

Walter Scott.

The Druids held their power through the superstition of the people, and as they were great pretenders to magic and divination, they excited the admiration, and took advantage of the ignorance and credulity of mankind ; for by these arts they pretended to work miracles and to exhibit astonishing appearances in nature as well as to penetrate into the counsels of heaven.

Divested of these pretended powers, there is no doubt but that the Druids were better acquainted with the medicinal properties of herbs than any other class of men in their day, since, their residences being in the recesses of mountains, groves, and woods, where vegetable productions were constantly courting their attention, it is natural to suppose that they would in some measure become acquainted with the qualities of plants in general. That the Druids of Gaul and Britain applied themselves to this study, and made great use of herbs for medical purposes, we have sufficient evidence, since we learn from scattered hints in Pliny’s *Natural History*, that they sometimes extracted the juice of herbs and plants, by bruising and steeping them in cold water, and sometimes by infusion in wine ; that they made potions and decoctions by boiling them in water ; and we learn also that they frequently dried certain herbs before infusing them, and that they administered some plants by fumigations, and practised the art of making salves and ointments of vegetables, for which they had great renown even at Rome, to which city they exported the Vervain, and it was hence called *Britannica*.

Although so many ages have passed away since the Druids and their pretended spells have been abolished, yet we frequently meet with lingering sparks of their imagined light among the vulgar, who upon every occasion cling to superstition.

Madame de Latour tells us that the shepherds in the northern provinces of France, still continue to gather the Vervain under different faces of the moon, using certain mysterious ejaculations known only to themselves, whilst in the act of collecting this herb, by whose assistance they attempt to cure not only their fellow-servants, but their masters also, of various complaints, and they profess to charm both the flocks and the rural belles with this plant.

The Germans, to this day, present a hat of Vervain to the newly-married bride, as if to put her under the protection of Venus victorious, which is evidently the remains of ancient customs.

NOTES ON NEW OR RARE PLANTS.

ACROCLINIUM ROSEUM.—It belongs to the Linnæan class *Syngenesia*. Seeds were sent by Mr. James Drummond in 1853, from South-West Australia to the Royal Gardens at Kew, where plants have bloomed this summer. It is an annual, and has been kept in the greenhouse. It grows erect, and, from its small annual root, numerous slender stems push forth from one to two-feet high, blooming very freely. Each flower has much the appearance of *Rhodanthe Manglesii*, but larger, being about two inches across, of a beautiful rosy-pink colour, with a striking yellow eye. From what we saw of its growth in the greenhouse, we feel certain that it will flourish freely in the open air during summer, and prove to be a very beautiful bedding plant, highly meriting a place in every flower garden. If grown in patches in a border of mixed flowers, it will be one of the prettiest of its size, and, as a summer ornament for the greenhouse, it will prove one of the neatest. (Figured in *Botanical Magazine*, 4081.)

CALYPTRARIA HÆMANTHA.—This splendid blooming plant belongs to the *Melastomææ*, and is a native of the Andes of South America, from whence it has been obtained by M. Linden, of Brussels. It is a vigorous plant, with handsome medium-sized foliage. The flowers are produced in large terminal branching cymose panicles. Each blossom is about three inches across, of a rich crimson-red, tinged with violet, and having ten long white filaments. The fine panicked heads of numerous magnificent flowers are exceedingly ornamental. It merits a place in every stove, and would form a most striking contrast with the fine violet-blue *Melastomas*. It will be a valuable acquisition to our exhibition plants.—(Figured in Mr. Van Houtte's *Flore des Serres*, 924.)

CAMPANUMÆA LANCEOLATA.—It belongs to the *Campanulaceæ*, and a native of China. It is a climber, having similar sized and formed leaves to those of a *Bouvardia*. It blooms very profusely. Mr. Van

Houtte states, that "on the 28th of July, a plant in his establishment had 200 flowers upon it." Each blossom is drooping, bell-shaped, an inch and a half long, and the same extent across the mouth; of a greenish-white outside, and the inside green, netted with purple. The plant requires a slight protection in winter; and, if uncovered in spring, or, if in a pot, planted out in spring, it will flourish admirably in the open air.—(Figured in *Flore des Serres*, 927.)

CAMELLIA PRINCESSE MARIE.—The flowers are very double, petals *fineform*, and thick substance; a rich rosy-red, with a very distinct white stripe up the centre of each petal. A very beautiful variety.—(Figured in *Flore des Serres*, 928.)

PITTOSPORUM FLAVUM.—A moderate sized, much-branched shrub, a native of East Australia. The leaves are about the size of those of a vigorous apple tree. The flowers are produced in terminal corymbose heads, each blossom (of five segments) is an inch and a half across, of a rich yellow, with red stripes at the centre; and the tubular part of the flower is an inch long. It is a fine plant for the conservatory.—(Figured in *Botanical Magazine*, 4799.)

RHODODENDRON LEPIDOTUM, VARIETY CHLORANTHUM.—Dr. Hooker discovered this in Sikkim Himalaya, and at first considered it a new *species*, to which he gave the name of *Rhododendron salignum*, but subsequently he considers it a *variety* only of *Rhododendron lepidotum*. It forms a dwarf branching shrub. The flowers are borne at the ends of the shoots two or three together, footstalks two inches long, and each blossom an inch across, white, with a tinge of green at the centre, and the eleven large red-brown anthers in contrast with the other part of the blossom is very pretty. (Figured in *Bot. Mag.*, 4802.)

RHODODENDRON CITRINUM—THE CITRON FLOWDRED.—A native of Java, which has been imported into England by Messrs. Rollisons of Tooting. It is stated, that in Java it inhabits trunks of old trees in marshy mountains. It forms a handsome, evergreen, greenhouse shrub. The blossoms are *bell-shaped*, each about an inch long, and nearly as much across the mouth, of a pretty lemon colour, and fragrant. The anthers are orange-red, which contrast prettily with the lemon corolla. The leaves are in form and size like those of a broad-leaved greenhouse azalea. The flowers are produced at the ends of the shoots five or six together. It is a neat and handsome shrubby plant. (Figured in *Bot. Mag.*, 4797.)

PRIMULA MOLLIS.—THE SOFT-LEAVED BOOTAN PRIMROSE.—It is a charming new *Primula*, intermediate as it were between *Primula Sinensis* and *P. cortusoides*, but very different from either in foliage, corolla, and especially the calyx. It is a native of the hills of Bootan, and has been sent to Mr. Nuttall, of Rainhill, near Prescott, in Lancashire, where it has been kept in the greenhouse; but it is considered likely to succeed in the open air. It is a perennial plant, and the flower stem rises about eight inches high bearing from 10 to 12 beautiful lively rose-coloured flowers, having a red eye. Each blossom is nearly an inch across. The *tubular* part of the calyx is of rich purple.

red, and the five segment parts are green. It is a charming species. (Figured in *Bot. Mag.*, 4798.)

SOLLYA DRUMMONDII.—One of the prettiest greenhouse twining plants for a pot, coiled round a wire frame work, or several sticks placed around the inside of the pot. It is a slender looking plant, grows very freely, and blooms profusely. The flowers are bell-shaped, drooping about half an inch across the mouth, of the most *intense blue* colour, and exceedingly neat and handsome. It blooms nearly all the year.

BEGONIA HISERHATTE.—The leaves are very like those of the black currant bush. The plant is bushy $2\frac{1}{2}$ feet high. The flowers are pretty, large, white, with a rosy margin. It flourishes in the greenhouse at Kew.

BEGONIA PRESTONIENSIS.—This is one of the most ornamental greenhouse plants; its profusion of *large* brilliant orange-scarlet flowers is exceedingly showy. It is so free in growth and blooming that it may be managed so as to have it bloom throughout the year. It ought to be in every greenhouse.

RHODODENDRON NUTTALII.—A very distinct and magnificent greenhouse species, is a native of the Bootan Alps. The leaves are from six to eight inches long, and three to four broad, leathery. The flowers are borne in terminal corymbs, well shaped, four to six blossoms in each. A separate flower is about five inches long, and as much across the front; white tinted with rosy-red, and yellow at the base inside, also delightfully fragrant.

RHODODENDRON WINDSORII, also from the Bootan mountains, and proves quite hardy. It is a close dwarfish shrub blooming freely in large heads. The flowers are of a "deep crimson—scarlet colour," much more brilliant than those of *R. arboreum*. It is a valuable acquisition.

RHODODENDRON CAMELLIÆ FLORUM.—The flowers are white, tinged with rose, in form like a *single camellia*, an inch and a half across. From Bootan.

RHODODENDRON JENKINSII, A fine shrub six to seven feet high, leaves large, leathery. The flowers, it is supposed, (from the buds) are yellow, and large, in which case it will be exceedingly valuable.

CHRYSANthemum ANNIE HENDERSON.—The flowers are in form and colour (yellow) of those of *Annie Salter*, of *dwarf habit*, and blooms as *early* as July, August, &c. In consequence of the earliness of its flowering, seed will be readily obtained, and we shall soon have a class (of all the usual colours) of summer blooming, adapted too for bedding purposes, as well as in pots. The following *minima kinds* come into bloom about the end of July, or early in August—*Belle d'Aout*, salmony yellow. *Andromede*, rose, very free bloomer. *Orian*, canary yellow. *Helene*, deep rosy-purple.

HELIOTROPium, BEAUTY OF THE BOUDOIR.—It is of compact habit, and very free blooming. The flowers are of a dark violet, with a light eye, produced in large trusses. It is valuable either for bedding or in pots.

ACHIMENES, SIR TREHERN THOMAS.—The flowers are large, of a fine rosy-crimson, one of the best.

BEGONIA LAPEYOUSSEL.—It is an abundant bloomer, the flowers rose coloured, an admirable winter-flowering plant.

ECHITES PELLIERI.—The flowers are produced in bunches of a canary-yellow colour, and the plant flourishes, when in a pot, trained to a circular framework, a fine stove plant.

CYTISUS ONOSPERMA.—A greenhouse shrub, in habit like *C. filipes*. The flowers are borne in bunches, white, deliciously fragrant, and blooms fine in winter.

FABIANA VIOLACEA.—As hardy as the pretty hardy shrub *F. imbricata*, which has tube-shaped heath-like white flowers, very neat and pretty. The new plant is like the old one, excepting the flowers being of a *violet* colour; very handsome.

POTENTILLA WELLINGTONIA.—A splendid seedling, ground-colour, a rich yellow, with a broad margin of rich scarlet, and the under side is yellow. Each blossom *three inches* across, and of fine form. It stands unequalled.

CAMPANULA ALLIARÆ FOLIA.—An erect grower, two to three feet high. Flowers borne on two-thirds of each spike, white, *drooping*, *large bells*, very neat and handsome, quite hardy.

THE FLOWERLESS PLANTS.

BY WILSON FLAGG BEVERLEY, U. S.

As a tribe of vegetable curiosities, pleasantly associated with cool grotto, damp shady woods, rocks rising in the midst of the forest, with the edges of fountains, the roofs of old houses, and the trunks and decayed branches of trees, may be named the flowerless plants. Few persons know the extent of their advantages in the economy of vegetation; still less are they aware how greatly they contribute to the beauty of some of the most beautiful places in nature, affording tints for the delicate shading of many a native landscape, and an embossment for the display of some of the fairest flowers of the field. The violet and the anemone, that peep out upon us in the opening of spring, have a livelier glow and animation when embosomed in their green beds of mosses, and the arethusa blushes more beautifully by the side of the stream when overshadowed by the broad pennons of the umbrageous fern. The old tree with its mosses wears a look of freshness in its decay, the bald rock loses its baldness, with its crown of lichens and ferns, and every barren spot, in the pastures or by the wayside, is enlivened and variegated by the carpet of flowerless plants, that spread their green gloss and many-coloured fringes over the surface of the soil.

Mosses enter into all our ideas of picturesque ruins; for they alone are evidence that the ruins are the work of time. An artificial ruin can have no such accompaniment, until time has hallowed it by veiling its

surface with these memorials. They join with the ivy in adorning the relics of ancient grandeur, and spread over the perishable works of art the symbols of a beauty that endureth for ever. While they are allied to ruins, and remind us of age and decay, they are themselves glowing in the freshness of youth, and cover the places they occupy with a perpetual verdure. They cluster around the decayed objects of nature and art, and are themselves the nurseries of many a little flower that depends on them for sustenance and protection. Though they bear no flowers upon their stems, they delight in cherishing in their soft velvet knolls the wood anemone, the star-wort (*Houstonia cærulea*), the cypripedium and the white orchis—the nun of the meadows—whose roots are embedded among the fibres of the peat mosses, and derive support from the moisture that is accumulated around them. Nature has provided them as a protection to many delicate plants, which, embowered in their capillary foliage, are enabled to sustain the heat of summer, and the cold of winter, and remain secure from the browsing herds.

Winter, which is a time of sleep with the higher vegetable tribes, is a season of activity with some of the flowerless plants. There are certain species of mosses and lichens that vegetate under the snow, and but few of the mosses are at all injuriously affected by the action of frost. By this power of living and growing in winter, they are fitted to act as a protection to other plants from the vicissitudes of winter weather, and by their close texture they prevent the washing away of the soil from the declivities into the valleys. They answer the double purpose of catching the floating particles of dust and retaining them about their roots, and of preventing any waste from the places they occupy. Finding in them the same protection which is afforded by the snow, or by the matting of straw provided by the gardener, there are many plants that vegetate under their surface, secure from the alternate action of freezing and thawing in winter, and of drought in summer. Hence certain flowers blossom more luxuriantly in a bed of mosses than in the unoccupied soil.

The mosses are seldom found in cultivated lands. As they grow entirely on the shallow surface, the labours of the tiller of the soil are fatal to them. They delight in old woods, in moist barren pastures, in solitary moorlands, and in all unfrequented places. In those situations they remain fresh and beautiful, while they prepare for the higher vegetable tribes many a barren spot, that must otherwise remain for ever without its plant. They are therefore the pioneers of vegetable life; and nature, when she selects an uncongenial tract to be made productive of fruits or flowers, covers the surface with a close verdure of moss, and variegates it with lichens, before she strews the seeds of the higher plants to vegetate among their roots. The wise husbandman, who by a careful rotation of crops causes his land to be constantly productive, is but an humble imitator of nature's great principle of action.

The mosses have never been made objects of extensive cultivation by our florists. Every rambler in the wild wood knows their value and

their beauty, which seem to have been overlooked by the cultivator. They undoubtedly possess qualities that might be rendered valuable for purposes of artificial embellishment. There is no tree with foliage of so perfect a green tint as that of the moss which covers the roofs of very old buildings. The mossy knolls in damp woods are peculiarly attractive on account of their verdure, and the fine velvety softness of their pleasantly rounded surface. Though the mosses produce no flowers, the little germs that grow on the extremities of their hair-like stems are perfect jewels. With them, however, it is the stem that exhibits the most beauty of hues, varying from a deep yellow to a clear and lively claret or crimson, while the termination is green or brown. I have nothing to say of the physiology of their propagation. I treat of mosses only as they are beautiful objects of sight, and useful agents in unfolding and distributing the bounties of nature. This tribe furnishes no sustenance to man or to any other animal. Those eatable plants which are called by the name of mosses are either lichens or seaweeds. Nature, who, with a provident hand, renders many of her productions capable of supplying a manifold purpose in her economy, has limited the agency of the mosses to a few simple and beautiful services. They perform, under her invisible guidance, for the field and the forest, what is done by the painter and the embosser for the works of the builder of temple and palaces.

The ferns have fewer picturesque attractions than the mosses; but like the latter, they are allied with the primitive wilds of nature, with gloomy swamps, which they clothe with verdure, and with rocky precipices, on whose shelvy sides they are distributed like the tiles on a roof of a house. They resemble mosses in their dissimilarity to common vegetable forms; and their broad wing-like leaves or fronds are the conspicuous ornaments of wet woods and solitary pastures which are unvisited by the plough. By their singular appearance we are reminded of the primitive forms of vegetation on the earth's surface, and of the luxuriant productions of the tropics. In places where they are abundant, the hellebore, with its erect stem and prim foliage, towers above the low shrubbery, and the purple *sarracenia* rears its nodding flowers like some strange visitant from another clime.

The ferns are for the most part a coarse tribe of plants, having more beauty in their forms than in their texture. In temperate latitudes it is only their leaf or frond that is conspicuous, their stems being either prostrate or subterranean. Yet in some of the species nothing can be more beautiful than the ramifications of their fronds. In their arrangements we may observe a perfect harmony and regularity, without the formality that marks the compound leaves of other plants. Herein nature affords an example of a compound assemblage of parts, in a pleasing uniformity that far exceeds the most ingenious devices of art. Apparently similar arrangements are seen in the leaves of the poison hemlock, the milfoil, and the Roman wormwood; but their formality is not so beautifully blended with variety as that of the compound-leaved ferns.

In tropical countries some of the ferns are woody plants, attaining the size of trees, rising with a branchless trunk over fifty feet in height, and then spreading out their leaves like a palm tree. Hence they are singularly attractive objects to the traveller from the north, by the sight of which he seems to be carried back to the early ages of the world, before the human race had a foothold upon the earth. Here we know them only as an inferior tribe in relation to size, the tallest seldom exceeding two or three feet in height. Everything in their appearance is singular, from the time when they first push up their purple and yellow scrolls above the surface of the soil, covered with a sort of downy plumage, to the time when their leaves are spread out like an eagle's wings, and their long spikes of russet flowers, if they may be so called, stand erect above the weeds and grasses, forming a beautiful contrast with the pure summer greenness of all other vegetation.

There are few plants that exceed in beauty and delicacy of structure the common maiden-hair. The main stem is of a glossy jet, and divided into two principal branches, that produce in their turn several other branches from their upper side, resembling a compound pinnate leaf, without its formality. In woods in the western part of this state is a remarkable fern called the walking leaf. It derives its name from a singular habit of striking root at the extremities of the fronds, giving origin to new plants, and travelling along in this manner from one point to another. There is only one climbing fern among our native plants. Equally beautiful and rare, it is found only in a few localities all the way from Massachusetts to the West Indies. Unlike other ferns in its twining habits, it has also palmate leaves, with fine lobes, and bears its fruit in a panicle, like the *Osmunda*. But we need not search out the rare ferns for specimens of elegance or beauty. The common polypody, with its minutely divided leaves, covers the sides of steep woody hills and rocky precipices, and adds a beautiful evergreen verdure to their barren slopes, otherwise destitute of attractions. The ferns and the mosses are peculiarly the ornaments of waste and desert places, clothing with verdure barren plains and rough declivities.

From the flowerless plants mankind do not derive sustenance proportionate to that afforded by the other tribes. The ferns, in the middle ages, obtained the name of "capillary herbs," from the belief that they contained substance that would promote the growth of the hair. The active principle was an alkali obtained from the ashes. Modern experience has not proved their usefulness or their possession of any extraordinary virtues. The female fern has a mucilaginous root, which, in times of scarcity, has been manufactured into bread. An old traveller in America speaks of a fern called *Filix baccifera*, which is loaded with eatable berries; and some botanists have represented the sago plant as a true fern. These two last statements are not well authenticated. Next to the mosses the ferns are the least useful tribe of plants, with respect to their nutritive properties or their medicinal virtues.

I have always attached a romantic interest to the sea-weeds (*Algæ*);

whose forms remind one of the haunts of the Nereids of the mysterious chambers of the ocean, and of all that is interesting among the deep inlets of the sea. Though flowerless, they are unsurpassed in the delicate arrangements of their branches, and the variety of colours they display. We see them only when broken off from the rocks on which they grew, and washed upon the shore, where they lie, after a storm, like flowers scattered upon the greensward by the scythe of the mower. When branching out in the perfection of their forms, underneath the clear briny tide, they are unsurpassed by few plants in elegance. The artist has taken advantage of their peculiar branching forms, and their delicate hues, and weaves them into chaplets of the most beautiful designs.

The sea-weeds seem to be allied to the lichens, and are considered by some botanists as the same plants modified by growing under water, and tinted by the iodine and bromine which they imbibe from the sea. Like the lichens, they afford many species which are wholesome and nutritious articles of food. Among these may be named the pepper dulse (*Fucus pinnatifidus*), having an agreeable aromatic taste and eaten as a salad; the daber-locks (*F. esculentus*), used as food in Scotland; the Irish moss (*Chondria crispus*), and the red dulse, which is said, when roasted, to have the flavour of oysters. The laver is another of the eatable kinds, and is used as a salad and a pickle. It is useless to name the great variety of *Alge* which are palatable and wholesome. Their office in the economy of nature, according to a beneficent law that prevails throughout the earth, seems to be that of appropriating all the superfluous nutrible substances that float in the waters, thereby preserving them for the benefit of a higher race of beings.

The lichens are the lowest tribe in the scale of vegetation. They make their appearance on naked rocks, and clothe them with a sort of fringe, holding fast on the rock for security, and deriving their chief sustenance from the atmosphere and the particles of dust wafted on the winds and lodged at their roots. They have properly, however, no roots, neither have they leaves or stem; yet they are almost infinitely varied in their forms, hues and ramifications. They grow in all places which are exposed to air and moisture, on the surface of rocks, old walls, fences, posts and the branches of trees. Some of the species are foliaceous, resembling leaves without branches, and without any distinct or regular outlines, and found mostly on rocks. Others are erect and ramified like trees and shrubs, but without anything that represents foliage. Such is that common grey lichen (*Cenomyce*) that covers our barren hills, which is a perfect hygrometer, crumbling under the feet in dry weather, and yielding to the step like velvet whenever the air contains moisture. In similar places, and growing along with it, is found one of the *hepatic* mosses, that produces those little tubercles—the fructification of the plant—resembling dots of sealing wax, and eagerly sought by those who manufacture designs in moss. But the most beautiful lichens are those which are pendent from the branches of trees (*Usnea*), consisting of branching threads, of a ash-green colour,

and bearing little circular shields at their extremities. These lichens give character to moist woods and low cedar swamps, where they hang like funereal drapery from the boughs and deepen the gloom of their solitudes.

Lichens, though inhabiting all parts of the earth, are particularly luxuriant in cold climates, thriving in extreme polar latitudes, where not another plant can live. Nature seems to have designed them as an instrument for preparing every barren spot with the means of sustaining the more valuable plants. Not only do they cause a gradual accumulation of soil by their decay, but they actually feed upon the rocks by means of oxalic acid that exudes from their substance. By this process the surface of the solid rock is changed into a soil fitted for the nutrition of plants. After the lichens have perished, the mosses and ferns take root in the soil that is furnished by their decay. One vegetable tribe after another grows to perfection and perishes, but to give place to its more noble successor, until a sufficient quantity of soil is accumulated for the growth of a forest of trees. In such order may the whole earth have been gradually covered with plants, by the perishing of one tribe after another, leaving its substance for the support of a superior tribe, until the work of creation is completed.

Many of the lichens afford sustenance to man, and are useful in medicine and the arts. The Iceland moss is used as food in the cold latitudes, in a variety of forms and preparations, and was formerly prescribed, on account of its bitter principle, as a remedy for consumptions. The "tripe of the rock" is a lichen that has afforded a grateful repast to many a starving Canadian hunter. Another species dyes a fine scarlet, and is also used as a substitute for allspice. Many of them are aromatic, and form the basis of scent powders. As the higher vegetable tribes, through the breathing apparatus afforded by their leaves, absorb carbonic acid from the atmosphere, it is probable that the lichens and *fungi*, many of which are known to contain peculiar chemical properties, are the natural absorbents of such mineral poisons as may be floating in minute quantities in the atmosphere, and act an important part as purifying agents.

PINKS.

BY AN OLD PINK GROWER.

THESE favourite flowers are improving so rapidly in size, smoothness of petal, and distinctness of colour, that I feel certain many of the new varieties have only to be seen to completely supersede the neat, though "buttonlike" sorts, such as Greensides, Susanna, &c. I have purchased some of these, and growing a number of the Lancashire and Yorkshire varieties, I have been enabled to make a few memoranda, which I forward for insertion in your next number. I have had a most excellent bloom, and as my plan is simple, I may as well describe it. My bed

was well dug in the autumn, and enriched with decayed horsedung and burnt turf ashes, and to the latter I attribute in a great measure my fine growth. At the end of August, the bed was planted with good well-rooted plants, watered occasionally, and about the end of September, the surface of the soil was covered with well decayed cucumber bed manure. This remained on all the winter, and when the bed was cleaned in spring, was slightly forked in with a small fork, the prongs being not more than four inches long. When the buds made their appearance, the plants were regularly watered, and at half their size, weak liquid manure was given. The amateur must mind these points:—Rich compost, not too light; autumn planting, covering the soil before winter, and regular watering. By these means, he will have large finely-laced blooms, with plenty of increase. I will now tell your readers about some of the sorts I have seen, and what I think of them. I will begin with

Prince of Wales (Bragg).—Really a very fine flower, with stout well-formed petals. It throws up a tall flower-stalk, strong as a carnation. The lacing of the blooms is broad rosy purple. It has the advantage too of blooming evenly without assistance, and has not that confused moplike appearance which very many used to have, but which I believe are now rapidly disappearing from all fine collections, though the next named is one of that sort.

King of Hanover.—A flower of some fifty or more petals. With me, coarse and ugly.

Ruby (Bragg).—A well-named and beautiful flower; heavy red, but good in character, and a fine sort for exhibition. This should be one of a dozen.

Glory.—One of the most chaste flowers I have seen this season. The white is purity itself, the lacing rosy purple, laid on in medium style, very evenly and truly; the petal is smooth, and will be admired by everyone.

Hon. C. Wellesley.—Quite first-rate. Large, of fine form, heavy red, it might readily be taken for a picotee. The first flower was rather coarse, but those succeeding were quite up to the mark.

Blackeyed Susan, with the same treatment as the foregoing, bloomed very unsatisfactorily, the flowers being neither laced nor black and white, but intermediate. The new sorts have put me quite out of conceit with this variety.

Koh i Noor.—A delicate lilac rose lace. The petal is good, though it cannot be classed either as a red or a purple. It will be a telling flower in a stand, where dissimilarity is required. It appears to be an early variety.

Ada.—This is one of Read's, of Clophill, who has introduced some most excellent varieties. It is one of my favourites,—the white is so pure, and the purple lace so beautifully laid on. I am certain every pink grower must be pleased with it.

Annot Lyle.—Rather rough, but laces well. Some of the latter

blooms have been smooth, but, as it has come with me this season, certainly not first rate.

Pilot. (Hand).—A finely marking old variety, blooms rather too flat for the present advanced state of the fancy, wanting a few small petals to form a crown. If a "moon" (the dark circle in the centre) is wanted, or admired, it has a "full" one.

Sappho (Colcutt).—With me, a splendid flower. Dark reddish purple lace, white very pure, a chaste and excellent sort.

Attraction.—This is one of the many raised by that indefatigable florist, Mr. Looker, of Oxford, and though varying in colour, bears a strong family likeness to many flowers originated in that quarter. They lace remarkably well, but have an undesirable "fringiness," with a spade-ace white ground within the lacing. There are some exceptions, which I shall notice as I proceed. This is a heavy purple, approximating to the shade called Tyrian; the petals in the centre are rather strap-shaped, but it will, with good growth and a little dressing, make a nice flower.

Climax (Looker).—Heavy red. A full capitally-laced flower, very attractive on the bed.

Diadem.—A marone laced flower, blooms flat, without dressing. Distinct, pure and good.

Hon. Mrs. Herbert (Keynes).—Not so large as some, but a flower of great refinement. The white is beautifully pure, and contrasts capitally with its even, very dark lace. It crowns well, blooms smoothly, and ought to be grown by every amateur.

Earl of Carlisle.—Of medium size, good form, dark red lace. There is something about this flower that I am not partial to, though it comes tolerably well, and is neat; certainly it is not particularly showy.

Bishop of Oxford.—Heavy purple. I have had it this season in two characters, heavy and medium laced, in both very attractive. The petal is good, and it appears steady in character.

Laura (Willmer) has now been "out" some years, but still takes a prominent position, and is really a very beautiful sort. Heavy rosy purple lace, smooth petal, good form, and constant. This must be one of a collection, however select.

Queen Victoria (Bunkell).—A rich, finely-marked, dark flower, but serrated, and centre petals strap-shaped. It must, in spite of its "regular conduct," be "moved on."

Brilliant.—A beautifully coloured flower,—cherry-red edge, well laid on,—but, unfortunately, rough.

Edgar (Turner).—Dark red. A sweet variety. White very pure, lacing medium, and nicely done. This sort I much like.

Othello.—Flowers in a pretty form, dark red, very smooth, with small petals to form a crown. Does not require the tweezers much, and is very constant.

Pandora (Looker).—A useful flower, heavy red. Of this I have had some very fine blooms.

Vesta (Looker).—A very fine shade of purple, distinct. The petals are rather flimsy, and curl at the margin; otherwise it is an attractive variety, from its striking colour.

Sarah (Turner).—A remarkably strong-growing, large-flowering variety; laces remarkably well. The second blooms, this season, were unexceptionable. Red lace.

Reliance (Looker).—Rich deep purple, laces well. Were the petals rather broader, this would be a splendid flower.

Picta (Looker).—Red lace, rather thin, and petals incurve too much. It is very pure, and laces well.

Flora (Looker).—A very pretty, nicely-formed red lace; crowns well, and has pleased most people who have seen it.

Lord Norreys must close my remarks for the present. Tall-growing, it laces finely with dark purplish crimson. When strongly grown, it is apt to be coarse, but the second blooms, or when not overgrown, are generally splendid.—(*Midland Florist.*)

WELLINGTONIA GIGANTEA.

BY EDWARD SPEARS, UNITED STATES.

IN the last two numbers of the *Floricultural Cabinet*, there are references made relative to the disputation about the name of this tree. I therefore beg you will insert the following additional remarks, taken from *Hovey's Magazine of Botany*, published at Boston.

We have already noticed this fine evergreen tree, and have commented upon the pompous name given it by Dr. Lindley, as has also our correspondent W. R. Prince. We are now glad to learn that our California neighbours have the same opinion as we expressed ourselves, and justly ridicule the pretensions of Lindley to give it the new name of Wellingtonia. The *California Farmer* of May 4, just received, has an excellent article on the subject, which we copy, fully exposing, as it does, the ambitious and overreaching notions of Dr. Lindley, in appending the names of European heroes to our finest American trees. As the writer truly says, 'a more preposterous piece of cockneyfied nonsense never filtered through the brain down into the fingers through the ink of the pen of any denizen of the commercial Babylon of the modern world.'

To the Editors of the California Farmer.

In the *Illustrated London News* of February 11 last—a copy of which is enclosed—you will find an excellent botanical description, accompanied with an engraving, of the celebrated Arbor Vitæ of San Antonio Creek, in the county of Calaveras.

The gentleman who gives the scientific biography of this wonder of living vegetation, was well known to me during his residence in this

country, and it is no flattery to say that a more competent person could not be found to delineate its physical features. Besides extensive journeys through nearly every portion of Oregon and California, Mr. Lobb is pre-eminently fitted to form a correct judgment, from a thorough acquaintance with the order of cone-bearing trees—having traversed the Cordillera of South America, from the equator to near the Straits of Magellan: these countries, with North-west America, affording the most magnificent specimens and varieties of this class of plants. Mr. Lobb is not only an experienced and diligent collector, but his taste has constantly led him to take the greatest interest in the Conifera, and his accuracy and care, I can say from personal knowledge, it is almost impossible to exceed.

The description by this gentleman, of our celebrated tree, was made to the *Gardeners' Chronicle*, prior to the 11th February; Mr. Lobb having sent living specimens of the youthful brothers of the Calaveras giant, with a quantity of the seeds, to London, for the examination of the scientific, and for the purpose of propagating the species in England. The man of the *Chronicle* thereon dilates and exfoliates to that degree, that to any other but a lover of trees and flowers and running brooks, it would be thought expedient to confine him within the square of a soda water bottle crate; but, finally, you conclude it would be wiser to sew him up in a straight jacket, for, after a most inviting and delightful description of the tree, he worries his brains into a vortex of names and quandaries, and finally falls from his excursive flights and heights into the domains of Nature's history, to proposing as a name for our noble *Arbor Vitæ*, or if you please, in Spanish *Arboldzo Grandissima*—what do you think?—what name could you possibly exercise your jealous California guessing at, by which you would arrive at a satisfactory solution of the enigma? Give it up, for I am impatient to let you know. He suggests and accords the name of a soldier—a son of Mars—lately clothed in a Field Marshal's dress in the army of Britain, and called Arthur Wellesley, whilom Duke of Wellington, commander of her military forces till he grew grey with service, and then quietly laid down his life at the finality of his corporeal existence, amidst the benedictions of his countrymen, for sticking to them and by them through thick and thin. He says it ought to be called the 'Wellingtonia gigantea,' and then goes on to call it so, and actually describes it as such; thus making the first assumption of a name, which, with most European and English readers, will cleave to it, unless we enter our vigilant and vigorous protest. And, in the name of California, I shall assume to do so; for a more preposterous piece of cockneyfied nonsense never filtered through the brain down into the fingers through the ink of the pen of any denizen of the commercial Babylon of the modern world.

Without detracting one iota from the claims and character of the great Duke of Wellington, who was all his life a very monument of plain, sagacious, practical good sense—let us ask what right his admiring countrymen in the botanical or military line have for flying off to California to fasten his fame and glory to the most wonderful specimen

of the living, spreading presence of the great Creative Author of all things, who planted this vegetable pyramid as a memento of his handiwork, when the Sierra Nevada was lifted from the volcanic centres of our planet, and emerged, with its snow-crested peaks, from a primeval ocean, which laved its bases! And the beneficent Father of bountiful creation, 3,000 or 5,000 years ago planted with His own paternal hand in a silent valley of our California, on the side of the eternal hills, this sign of his love to that portion of the family of his children who should reside for all mundane time in this partition of the earth's extremities, after passing through centuries of wadings in human blood, and petrified in their souls in the servilities of religious faiths and fanatical bigotries—yes, after 6,000 or 60,000 years of experience, to arrive at the shores of the Ocean of Tranquility, and they and their children sit them down with pleasant and grateful thoughts under its wavy foliage and spreading branches—realizing the typical comparison of the all-embracing wings of nature's Universal Parent. Or, if left as a monument to men, to testify of the truth of the Chronicles of the Democratic Theocracy of the Jews, who, like true cosmopolites, have scattered from the cradles of humanity in the Asiatic Palestine, at that point of their history when Joshua, their first leader after Moses, wearied with the slaughter of the Amorities—"And Joshua said, in the sight of all the hosts of Israel, 'Sun, stand thou still upon Gibeon, and thou, Moon, in the valley of Ajalon.' And the sun stood still and the moon stayed, and hasted not to go down about a whole day." And at this great concurrence of human passions, when the mechanism of the universe of the Living God was arrested for a space of time, as asserted in the most ancient collection of historical and literary documents, we may imagine our Californian Arboreal Methusaleh was planted to mark a momentous epoch in the cycles of worldly events.

Now, I say, hath not Wellington's name been stuck by Englishmen to boots, shoes, dogs, cats, carts, horses, carriages—to streets, towns, cities, rivers, ships, counties—to puling infants, regiments of red-coated soldiers, inns of rest for man and beast—to every conceivable thing under the sun, so as to weary and disgust the mind of independent man, born of the forest and prairies, with the very sound of his title? Then, why seek to fasten it on the magnificent specimen of nature's handiwork, placed in a far-off valley in the bosom of the snowy mountains of the Northern Pacific, where its roots were laved with the waters from the primeval snows of our Cordillera; for 6,000 years depositing their flakes of gold at its roots, to attract men from every clime to come and rest under its beneficent pyramidal pile of leafy and bounteous refreshing green foliage of shade.

The heart of every Californian ought to rise up indignant at this assumption of a stranger, and in a still greater degree at the American savage who dared, with his barbarous axe, in open day, to slay this mighty giant of our mountains, built by the hand of God in the virginal youth of California, when the foundations of the eternal hills were laid by His majesty and omnipotence.

If Californians or botanists wish to bestow the name of a human being on this majestic plant, there are sufficient names in the history of our State and country far more applicable and proper than those fagged out of old Europe.

But the tree, I conceive, ought not to bear the name of a human being. It is God's tree—His gift to the children of California, to repose under its cooling shade in the heat of the noonday sun, and rest their wearied bodies from exhausting labour. Therefore Californians ought to baptize this primary wonder of botanical science, and not Atlantic or European strangers.—*Alex. S. Taylor.*

FORCING BULBS, AS HYACINTHS, &c.

BY A LONDON AMATEUR FLORIST.

For many years it has been a favourite object with me to have a fine bloom of forced bulbs, such as hyacinths, &c., both in glasses and pots, and now the season for commencing operations having arrived, induces me to note down a few particulars, which I have practised; and as to the result, have never failed to have a most brilliant display of these lovely flowers, affording me their varied beauties and fragrance, as additional charms to domestic comforts, at a season of the year which often precludes similar *out-door* enjoyments.

HYACINTHS IN GLASSES.—In selecting bulbs, take the plump and firm ones, the more globular the better, being the most perfect.

The bulbs should be placed in *dark coloured glasses*, filling them no higher with water than about an inch from the bulb, wrap the glass and bulb closely round with a piece of old flannel; they must then be put in a moderately warm closet, or other dark place, for two or three weeks, by which time they will have emitted roots, and should be removed to an airy, light and cool situation, till about Christmas, when they may be brought into the warm sitting-room, and placed near the windows. The attention to placing them in the dark, arises from the fact, that where light has free access, leaves will immediately be produced, as it is congenial to their nature; but it is the opposite with roots, and where full light exists, they will not push forward. Kept in the dark roots, push freely, and having obtained them first, leaves and flowers will certainly follow. When they are removed to a light situation, the glasses may be filled up to the tips of the roots, and in a week afterwards up to the bulb. Rain or river water is to be preferred, and should be changed every two or three weeks, the fresh water being applied about the same temperature as that removed. Should the water in either of the glasses become foul sooner than the others, the roots and the under part of the bulb will generally be found covered with a decayed substance, which should be removed, and the whole plant washed. Should off-sets appear round the bulb they should be removed early. As

soon as the Hyacinths are overblown, the blossoms should be stripped off without destroying the leaves or stem, and the plant laid in the earth until June, when they may be taken out and laid up on shelves or boxes, in an airy situation, until October, when, though not fit for blooming a second season in water, they will produce fine blossoms in the open ground, and by thus saving annually the bulbs which have been forced and their numerous off-sets, a beautiful Hyacinth bed of every shade and colour may soon be obtained, which is one of the most pleasing objects in the months of April and May. I repeat that the errors too often observable in growing Hyacinths in water are,—placing them in the *full light* when *first* planted, which is very unfavourable to the growth of the roots—keeping them away from the *light* when throwing up the leaves and blossoms, which prevents their coming to their natural colours—placing them (before the leaves and stems are sufficiently advanced) upon a chimney-piece or other very warm place, which spends too much of the bulb in fibrous roots, and forces up the blossoms before they arrive at their proper size, form, or colour.

Hyacinths, Narcissuses, Jonquils, Tulips, Persian Irises, and other bulbs for early blooming in pots, (without any hotbeds or greenhouses,) should be planted early in September, for which purpose deep-shaped flower-pots should be procured, called bulb pots, placing crocks or coarse gravel at bottom for drainage, and be filled to within two inches of the top with rich loam, containing a portion of fine road sand and decayed manure; then place the bulb on the same without pressure in so doing, and fill to the top with the same compost, after which a little pressure should be used, which will settle the bulb and mould firmly together with the top of the bulb just above the surface of the soil.

When the desired number of roots have been thus potted, they should be removed to any spare corner of the garden, and buried to the top of the pots in the earth, when they must be covered with *leaves*, rotten tanner's bark, or any other light dry substances to the depth of *nine or ten inches*, where they may remain without any attention until the plants will be found to have vegetated an inch or two; they should then be removed, and placed in any warm and light situation, where they will make rapid progress, and produce blossoms far superior to those obtained by other modes of treatment.

TREATMENT OF LUCULIA GRATISSIMA.

By MR. JAMES SMITH, GARDENER, HOPE HOUSE, MERIONETHSHIRE.

Two years ago I planted one in the border of a conservatory, into which abundance of air is usually admitted, and which is kept at a very low temperature; indeed, little artificial heat is employed beyond what will exclude frost, and the thermometer has frequently been as

low as 36° Fahrenheit. The dimensions of it now are, height 7 ft., diameter (measuring through the branches) 5 ft. 6 in., diameter of a cyme of flowers 7 in. The border in which it grows was excavated 2 ft. deep, in the bottom of which is a drainage, composed of brickbats and coarse rubble, 6 in. thick; immediately over this were put turfs of heath-mould rough from the common, upon which again is placed the compost, consisting of one-third strong rich loam and two-thirds sandy heath-mould coarsely broken and well blended, but on no account screened. We consider this drainage very important to plants in general, and absolutely indispensable for *Luculia*, the complete success of which will materially depend upon this being attended to. During the summer and early autumnal months water requires to be freely supplied, and the *under* surface of the leaves, as well as the whole plant, repeatedly washed with the fine rose of the syringe, because being subject to the attacks of red spider, which I need hardly observe will, if undisturbed for any length of time, greatly injure it. Occasionally some liquid manure is applied, but this requires caution, and must not be repeated too often, and not at all after the summer season. The general waterings must also be gradually diminished in September, and afterwards administered very sparingly, for the fine fibrous roots are easily injured by too much moisture. Under this easy management *Luculia* is a splendid plant, covered with cymes of beautiful flesh-coloured fragrant flowers, which continue in perfection during the dull months of November, December, and January. Its foliage, too, is luxuriant, dark, and green, and contrasts admirably with the large, bold heads of flowers. Those who are desirous of successfully cultivating this beautiful plant, should observe that it requires a much cooler treatment than it generally receives. When grown in a pot it must not be excited by high temperature in the spring and early part of summer; it must then be kept in a greenhouse. At the end of May and early in June it should be turped out into the open ground in a *warm situation*, rather sheltered from the sun, and in September be taken up, re-potted, and placed in a vinery or coolish plant-stove. It will then grow freely, and form its heads of flowers, which will expand their beauties and diffuse their fragrance through the winter. It is a good plant to flourish when in bloom in a sitting-room. Whether grown in the hot-house or open air, it requires some portion of shade. It is one of the finest winter plants in the country, and deserves a place in every conservatory, greenhouse, or plant-stove.

MISCELLANEOUS.

HOYA BELLA.—To have this *charming* little *Hoya* in perfection, it requires plenty of warmth and moisture while growing, good drainage,

and a free open soil. The latter should consist of equal parts of good fibrous peat, leaf-soil, and sand, well mixed together, to which may be added a tolerable portion of clean potsherds, broken small, and a few pieces of charcoal. The pots used should be drained from one to two inches in depth, according to their size. The peat should be broken up with the hand, but not sifted.

Presuming that young plants are obtained in spring, they should be placed in a stove or pit, where a temperature of from 65° to 70° is kept up. Under such circumstances they will grow freely, and will soon require shifting into larger pots. Shade slightly during bright sunshine, and water when necessary; but with a sufficiently moist atmosphere, and a moderate use of the syringe on favourable occasions, but little will be required at the roots, heavy drenches of water being prejudicial to them. As they progress, the leading shoots should be stopped, in order to induce the formation of more numerous branches, which should be spread out and arranged so as to make a neat specimen. If by the middle or end of June the plants are still growing freely, another shift may be given, and the same temperature maintained. When they begin to cease growing, which they should be encouraged to do early in autumn, they should be placed on a shelf near the glass to ripen their wood, and a drier atmosphere should be maintained; they may be kept here during winter, provided the temperature is not higher than 55° or 60°; during that season just sufficient water will be required to preserve the foliage in health.

Earlier in January, or a little later, as may be convenient, the plants should be cleaned, top-dressed, and placed in a growing temperature, as before directed, keeping the atmosphere moist, to induce them to break freely. When they have broken well, if large plants are desired, they may be shifted and grown on; but, if intended for flowering, it is preferable to defer shifting, as they bloom most freely when slightly pot-bound. The flower buds will make their appearance as the young shoots progress; and, when commencing to expand, a drier atmosphere, and a somewhat cooler temperature, will prolong the duration of the flowers. If well attended to during the summer, the wood will be perfectly ripened by the time the flowering is over, and the plants may be wintered as before. If it is necessary to prune them back, it should be done a few weeks before starting them, in order to allow time for the wounds to heal over before growth has commenced.

This plant has a fine effect, either planted out or plunged in a basket of moss, and suspended from the roof of a stove or Orchid house. In this way the flowers show themselves to advantage; and if the plants are kept moist while growing, and otherwise well treated, they will last for several years in perfection.—*Gardeners' Chronicle*.



NOW sow seeds of annuals, as *Clarkia*, *Collinsia*, &c., in small pots, well drained, and keep them in a cool frame, or other suitable place during winter; then turn the plants out, entire (or split the balls) into the open borders, in March and April, and they will soon be in bloom, and ornament the garden at an early period. Seeds of many kinds, *now sown in the open border* generally survive the winter, and bloom vigorously early the next season. *Carnations*: the layers should be taken off, severing them at a joint as near the root as possible. Only a few of the bottom leaves should be trimmed off to admit the compost to settle closely round the stem, and that no leaves may rot inside the soil, and be likely to damage the main stem. The compost in which to pot them must not be rich, or the plants will be likely to grow too vigorous, and become what florists term too gross. Equal portions of year-old turfy loam and leaf-mould, with a small proportion of sand mixed therein, is rich enough, and of a dryish texture, and the plants keep healthy in it if otherwise duly attended to. In potting, place two layers in each pot. Put them in a cool frame for about ten days, keeping the lights closed, and shaded from mid-day sun; this contributes to an immediate striking root afresh; afterwards they may be fully exposed in a sheltered spot, having a thick floor of coal-ashes or boards to place the pots upon, in order to prevent worms entering. *Pinks*: beds of them may still be made, and the earlier the more successful: dig into the bed four inches in thickness of old manure; do it a week or so before planting, and plant as early in the month as you can. *Pansies*: beds of them should be made for next spring bloom. Pot some of all the best kinds in small pots, to be placed in a cool frame during winter. If the sowing of the seeds of biennials, as *Scabious*, *Canterbury Bell*, *Brompton* and *Queen Stocks*, &c., has been neglected, they should be attended to as early as possible. *Verbenas*: runners should be potted in small pots, a third filled with potsherds, and the rest with good loamy soil, placing them in a close cool frame for ten days, shading from mid-day sun; after which gradually expose them to open air. Attention to them should be immediate. *Bulbs*, as *Hyacinths*, &c., are now to be had, and the sooner they are potted, the more vigorous will they bloom. *Chinese Primroses* should be encouraged for winter blooming. If mildew appears on any plants, dust them with sulphur immediately. *Camellias* may be grafted; the operation may be performed with the greatest success by pursuing the method the French call "*graffe en placage*," which is merely inserting that portion of wood that includes a bud and leaf, cut longitudinally, into a corresponding cleft in the stock. The grafted subjects should be plunged in bottom heat, and kept covered for at least a month. *Roses* may still be budded. Nail to the wall young shoots of *Banksian Roses*. Cut clean away those not wanted. Prepare beds of *Sweet Violets*. *Roses* for forcing too.

IN THE GREENHOUSE, &c.

Cuttings of nearly all plants may yet be successfully struck; but the earlier they are put in the better. Towards the end of the month take in the tenderer greenhouse plants; but the house should be white-washed, &c., previously, if required. Re-pot *Chrysanthemums*, if the pots they are in be full of roots; give manure-water once a week. *Cinerarias*: pot off singly the offsets, also seedlings. Seed of *Calceolaria* may still be sown, but as early as possible. Cuttings of bedding plants should be put in directly. Pot off singly rooted cuttings of *Pelargoniums*, &c. Cuttings of *Tea Roses*, *China*, *Bourbon*, &c., soon strike root at this period.

BRIEF REMARKS.

WATERING PLANTS.—Although during summer plants in pots require plenty of water, yet the too frequent application of it to hard-wooded things, such as Azaleas, Ericas, Epacrises, &c., even in the growing season, has the injurious effect of retarding the ripening of the young wood until the season is so far advanced that the securing this desirable object becomes a matter of impossibility. Plants like those just mentioned, when started into growth, provided they are not over-potted, and the balls are well drained, require, both in the quantity given and the frequency of its application, a gradual increase of this element, the administration of which ought to be regulated by the state of the weather on the one hand, and the condition of the roots on the other. In dull weather, for instance, and especially if accompanied by a humid atmosphere, an interval of from 24 to 48 hours might with advantage be allowed to elapse between the waterings; for, at all seasons, the fine thready fibres which constitute the roots of these plants are very impatient of excessive moisture. Again, to avoid the danger in this respect resulting from over-potting the plants, care should be taken to have the size of the pots proportionate with the strength of the plants, so that by the time the latter have done growing, the pots will have become filled with roots. Treated in this way, both the wood and the roots will grow and ripen together; a condition which will enable the plant to resist the ill effects of an occasional overwatering. After the growing season is over, the plants of Indian Azaleas should be removed to the plant ground, for the twofold purpose of hardening them off and preventing them from making a second growth; and in order to protect them from the effects of rough weather, it will be advisable to provide each row with a few short stakes driven firmly into the ground, to which should be securely fastened a single fence of neat rods, to suit the height of the plants. To this support, one tie for each plant will be ample. Ericas and Epacrises, however, should on no account be consigned to the plant ground, for a continuance of wet weather is certain death to them. A cool pit, having a south aspect, is the best place to grow them in; and if they have a cool well-drained bottom to stand on, all the sun it is possible for them to have will not harm them. They must, however, have plenty of air; and with proper care in watering, no fears need be apprehended for their perfect culture.—R. MILES. *Gardeners' Chronicle*.

TREATMENT OF THE FUCHSIA FULGENS.—No plant is more capable of being improved, or more certain of being spoiled by cultivation than the *Fuchsia fulgens*. After seeing it in its best state last year, I considered it altogether unworthy of the character it had received. I now entertain a different opinion; and that it may afford a hint to others, I detail the treatment that produced this change. Last year I treated the plant like a Dahlia or Erythrina; before it commenced growing I shook the whole of the dry soil, in which it had been wintered, from its roots, repotted it into as small a pot as would contain them, and assisted the growth by frequent shiftings, until it showed bloom. The result was, so far as overgrown foliage was concerned, as fine a specimen as could be wished. The flowers were, however, very disproportionate, and produced in clusters at the ends of the shoots. These were well enough individually, but by no means realising, as a whole, the expectations that had been formed of it. I was so much disappointed at this that I neglected it, and placed it upon the back shelf of a greenhouse, where it remained torpid until April. It then began to put forth a few feeble buds at the extremities of its unpruned branches; and it was watered with the other plants, but no addition was made to the soil in which it had flowered the preceding autumn. This has effected a complete and desirable change of habit; the foliage is much reduced, and the flowers *greatly enlarged*. They have not the same tendency to drop early; and instead of being produced at the tips of the shoots only, they form racemes of considerable length, and in this state the plant forms a *fine object*. Why a scanty supply of nourishment should increase the size of the flowers in proportion to the decrease of foliage has not I think been clearly explained, as the rule is not universal. —WILLIAM ROSS, *Liverpool*.

THE BLACK AND GREEN TEAS OF COMMERCE, BY DR. DOYLE.—It was a remarkable fact that the subject of the difference between the black and green teas had been, until recently, a matter of great uncertainty. The Jesuits, who had penetrated into China, and Mr. Pigou, were of opinion that both the black and green teas were produced from the same plant; while Mr. Reeve believed that they were manufactured from two distinct plants. Now, as regarded himself, he (Dr. Royle) had adopted the view that the best kinds of black and green tea were made from different plants; and examination of tea samples seemed to confirm that view, but a repetition of the experiment had not done so. Mr. Fortune, subsequent to the China war, having been sent out to China by the Horticultural Society of England, made inquiries on the subject. He there found the *Thea bohai* in the southern part of China employed for making black tea; and in proceeding as far north as Shanghai, he found the *Thea viridis* used in making green tea near the districts where the best green tea was made. So far, therefore, the information obtained seemed to confirm the view of two different species of *Thea* being employed to two different kinds of tea; but Mr. Fortune, in visiting the district of Fokien, was surprised to find what he conceived to be the true *Thea viridis* employed in making black tea in districts near where the best black tea was made. He took plants with him from Fokien to Shanghai, and could find no difference between them. It was still, however, desirable to get specimens from the district where the black and green teas of commerce were actually made, and this had latterly been effected. In consequence of the great success which had attended the experimental culture of tea in the nurseries established in the Himalayas, Mr. Fortune was again sent to China by the East India Company. He proceeded to the northern parts of the country, in order to obtain tea seeds and plants of the best description, as the most likely to stand the Himalaya climate. Mr. Fortune procured seeds or plants in great numbers, and sent them to the Himalayas, where they had been since cultivated. When he had reached Calcutta, the tea manufacturers whom he had brought with him made from plants in the Botanic Gardens their black and green tea from the same specimens; so that it was evident it was the process of manufacture, and not the plant itself, that produced the green tea. All now who were acquainted with the difference between black and green teas knew that they could be prepared from the same plant without the assistance of any extraneous materials, though it was a common thing for manufacturers to use indigo, Prussian blue, turmeric, &c., in colouring the tea. Dr. Royle showed specimens of the black tea plant from the Woo-e-Shan, and of the green tea plant from the Hwuychow districts. No specific difference could be observed between the two specimens.

ON PLANTING RHODODENDRONS, &c.—Respecting the depth of peat earth required for Rhododendrons, whether they are perfectly hardy and game-proof, I beg to offer the following remarks, which, from my experience, of from thirty-five to forty years, as well as being the most extensive grower in the kingdom, I flatter myself may be relied on. You are aware that it is not, but ought to be, generally known that all (or with but few exceptions) plants generally known as Americans will flourish in a much less portion of peat earth than is generally allotted to them, and which prevents this most beautiful family of plants being more generally introduced, as on most estates a compost may be prepared at a moderate price to answer the purpose. Of course, when bog can be easily obtained, compost is out of the question; but even then I find many will carry a better foliage than when planted in all the former. I would recommend your subscriber to add to the bog an equal quantity of loam, the same of decayed vegetable matter, such as leaf-mould, rotten wood, or turf, with one-eighth part of good sharp sand: this would carry the whole of the hardy Rhododendrons, Kalmias, Azaleas, &c., &c.; whilst the more common, such as *R. Ponticum*, with two or three of its varieties, *R. maximum*, *Azalea Pontica autumnalis*, and some others, will grow in almost any loamy soil, with only a small portion of the above composition round the roots of each to start them, if the ground is only first properly prepared, which consists in its being well trenched, keeping the surface or swardy part at top; this is most essential to the well-doing of all plants in forming a new plantation. One and a half to two feet would be quite a sufficient depth for the mould of clumps in general. The common Rhododendrons are all quite hardy, and free from the ravages of game.—*Knaphill Nursery.*





Lecanothus floribundus.



FLORICULTURAL CABINET

OCTOBER, 1854.

"The SEASONS, as they change, display the works of God.
The rolling year is full of Him.
Forth in the pleasing *Spring*
His beauty walks; His tenderness and love.
Wide flush the fields; the softening air is balm;
Echo the mountains round; the forest smiles:
And every sense, and every heart is joy.
Then comes His glory in the *Summer* months,
With light and heat refulgent. Then His sun
Shoots full perfection through the swelling year,
And oft His voice in awful thunder speaks;
And oft at dawn, deep noon, or falling eve,
By brooks and groves, in hollow-whispering gales,
His bounty shines in *Autumn*, unconfined,
And spreads a common feast for all that livea."

"I love thee, *Autumn*, for thy scenery, ere
The blasts of winter chase the varied dyes
That richly deck the slow-declining year;
I love the splendour of thy sunset skies,
The gorgeous hues that tinge each failing leaf,
Lovely as beauty's cheek—as woman's love, too brief."

ILLUSTRATIONS.

CEANOTHUS FLORIBUNDUS.

CEANOTHUS FLORIBUNDUS.—*Copious-flowering.* Ceanothus is derived from *kenteo* to prick, denoting a *spiny* plant. CEANOTHESES comprise a genus of showy and highly interesting plants. Within the last half a dozen years, several *very handsome* ones have been introduced. Some of the shrubby ones are perfectly hardy, when planted in *dry, elevated*, but *sheltered* situations. Several of the kinds are well adapted for training to a wall or similar construction, against which they spread rapidly and bloom profusely. The *evergreen kinds* are also valuable as winter ornaments in those situations. They are easy of cultivation, and readily propagated by cuttings. Several of these evergreens form

handsome bushy plants, by attending to cutting back the leading shoots in February, so as to form the bush; and any shoot pushing too vigorous for the others, should be stopped by pinching off the head early in summer. They are readily formed and kept in a neat, bushy; not stiff and formal clipped, but having an easy, open, elegant appearance. When so managed, and in profuse bloom, they are very neat and elegant, whether grown in the open, sheltered, dry border, outdoors, or in a pot in the cool greenhouse. Very small bushes bloom freely. In a compost of good loam, peat, and leaf or vegetable mould, equal parts, and having a dry substrata, they grow freely; and if suitably situated, the new wood becomes *well matured* during summer, and, in proportion, endures the rigours of winter unharmed.

Previous to the introduction into England of the species we now figure, we possessed some other very handsome flowering ones, but the *C. FLORIBUNDUS* is far more beautiful than they. It is a native of California, discovered by Mr. Lobb, who sent seeds of it to Messrs. Veitch, in whose establishments plants have bloomed, and it proves to be *quite hardy*. It forms a medium sized neat shrub. The branches are of a pretty chesnut colour, and the *new shoots* are of a more rosy-pink in proportion. The leaves are evergreen, compact, and shining, having a neat appearance. The flowers are produced in corymbs, and are so densely crowded as to form perfect globe-shaped heads, and are of the *richest brilliant mazarine blue* colour. The thread-like filaments are blue, and the pollen is of a rich golden yellow, which contrast with the blue produces a very interesting and beautiful appearance. It merits a place wherever it can be grown, either indoors or in the open air; and, blooming in such profusion, its elegant heads of brilliant blue flowers are exceedingly ornamental and attractive.

NOTES ON NEW OR RARE PLANTS.

ANGULOEA UNIFLORA.—A stove Orchidæa, from Columbia, which has recently bloomed in the nursery of Messrs. Jackson, of Kingston. Each scape bears but one flower (monk's hood shaped), which is about three inches across, a dirty cream colour, tinged and spotted with pink. (Figured in *Bot. Mag.*, 4807.)

HEDERA GLOMERULATA.—*Glomerated Ivy*. (Synonym, *Aralia glomerulata*.) It is a native of the Geda mountain, in Java, where it is known by the name of "Pangang." There is a plant of it in the stove at the Royal Gardens at Kew, where its singularly long, pendant racemes (four to five feet) are yearly produced in April and May, and always attract much attention. The plant is remarkable for its *tree-like*, or almost *palm-like* character, erect, seven feet high, and leafy only at the extremity. The racemes of flowers are each about five feet long, drooping, bearing forty to fifty large globular heads of flowers, of a brownish or yellowish-green colour. (Figured in *Bot. Mag.*, 4804.)

DESFONTAINIA HOOKERII.—We recently noticed this very valuable plant under the name of *D. spinosa*; but subsequently it has been dis-

covered to be different from a species which had previously been named *D. spinosa*, and the name of *D. Hookerii* is given by Mr. DUNAL to this new and most charming plant. Its beautiful evergreen holly-like foliage, elegant-shaped shrubby plant, bearing numerous large *tube-shaped* brilliant scarlet flowers, each two inches or more long and about half-an-inch across the mouth, render it one of the handsomest *greenhouse* plants. It is supposed likely to prove hardy enough to grow in the open air in Devonshire, or other mild parts of this country. It was discovered by Mr. Lobb, in Patagonia, and sent to Messrs. Veitch, in whose establishment we have seen it in beautiful bloom. It merits a place in every greenhouse. (Fig. in *Flore des Serres*, 938.)

MARANTA WARSCEWICZII.—A handsomely marked foliage distinguishes this fine stove plant. The leaves are of light and velvet-green in shades, with a broad creamy-white midrib, and the underside of a pale red colour, contrasting charmingly with the upper side, and renders it worthy a place in every collection of the ornamental-leaved section of plants.

RHODODENDRON COMTESSE FERDINAND VISART.—A fine hybrid in Mr. Van Houtte's establishment. It belongs to the *R. cinnamomea* section. The leaves are deep green above, and brown underneath. The flowers are large, *bell-shaped*, each being two inches and a half across the mouth, and of a creamy-white *broadly edged* with a bright rosy red. They are produced in *large heads*, and are exceedingly handsome. It is a charming companion for the finest of the Himalayan species, either in the greenhouse, conservatory, or out in the open air. (Fig. in the *Flore des Serres*, 933.)

RHODODENDRON MADDENI.—The flowers are nearly as large as those of *R. Dalhousiæ*, very much resembling in size and form the white Day Lily (*Lilium candidum*), white delicately tinged with rose, and very *fragrant*. It bloomed finely in a cool and shaded greenhouse in last May and June. (Fig. in *Bot. Mag.*, 4805.)

SENECIO PRÆCOX.—*Early-flowering Tree Groundsel*. (Synonym, *Cineraria præcox*.) It constitutes a large shrub, growing in the greenhouse, six to eight feet high. It has a thick woody stem, and the flowers are produced in large terminal corymbose, heads of a deep yellow. Each blossom (*starry-shaped*) is about two inches across. (Figured in *Bot. Mag.*, 4803.)

ALLOPECTUS CHRYSANTHUS.—A native of Columbia. The leaves are large; the upper side is like glossy velvet, and underside of a rich violet purple. The flowers are produced in abundance, the calyx of a lively velvety-red, and the petals of a golden yellow. This is a charming addition to the variegated or fine-foliaged stove or greenhouse plants. (In M. Linden's Establishment at Brussels.)

CONTAREA DIERVELLOIDES.—A shrubby plant, also from Columbia. It belongs to the order *Rubiaceæ*. The leaves are in shape like those of the Tartarian Honeysuckle, but much larger, and the flowers in form and size like those of *Weigelia rosea*, a pure white inside, and

bright pink outside, produced in terminal panicles. (In M. Linden's Establishment.)

SCIADOCALYX WARSCEWICZII (Synonym, *Gesneria Regeliana*).—It was discovered by M. Warszewicz on the mountains of Santa Martha, in Columbia. This genus appears to be a type between the *Achimenes* and *Gesneria*. The present species is a vigorous plant, hairy, with large heart-shaped foliage. It is in stature somewhat similar to a robust-grown *Achimenes picta*, and the flowers are very similar, too, to those of that plant. Tube wide, one inch and a half long, scarlet outside, inside yellow, numerously spotted with red. They are produced in profusion, in cymes of small umbels, each usually having three blossoms. It is a handsome flowering plant, requiring similar treatment to the *Achimenes*. (In Mr. Van Houtte's Establishment. Fig. in *Flore des Serres*.)

NEW SHOW-CLASS PELARGONIUMS.—We have taken notes of all the best new ones which are likely to be sent out the coming season, as well as of seedlings shown the first time this summer. Some are improvements on older flowers, but many are not superior to older ones of similar colour.

Phaeton (Foster). A large, well-formed flower; lower petals orange; top petals large dark blotch, shaded off to the margin with scarlet crimson, and smooth on the edges.

Wonderful (Hoyle). A large and well-shaped flower, white centre, with bright rose lower petals shaded with orange, top petals velvety maroon, with narrow carmine margin. Constant bloomer. Gained a first-class certificate at the National Floricultural Society, May 25. (Figured for September, 1854.)

Fair Ellen (Storey). A fine formed flower; lower petals white; top petals a dark blotch maroon, tinged with carmine, and shaded off to the margin with carmine, leaving a well-defined margin of white; smooth on the edges.

Serena (Hoyle). A fine formed flower, having a white centre, and purplish-rose lower petals; top petals nearly black, and margined with purplish carmine. Was awarded a certificate of merit at the National and Royal South London Floricultural Societies.

Seraskier (Foster). Good formed flower; lower petals bright crimson; top petals a black blotch, with narrow margin of fiery crimson.

Topsy (Hoyle). A striking flower, having a large white centre; lower petals a bright rose; top petals black; very pretty.

Petruchio (Foquett). A large showy variety; lower petals crimson; top petals a rich maroon spot, with crimson margin. A fine variety.

Jessica (Foster). A large fine-shaped flower; lower petals crimson; top petals a dark maroon blotch, and crimson margin.

Pandora (Turner). Lower petals crimson; top petals dark maroon, edged with crimson.

Lord Raglan (Hoyle). A large flower, in the way of Salamander, but a brighter colour.

Grand Sultan (Turner). Lower petals a rich crimson; top petals black, with a narrow margin of rich crimson; of good substance.

Yerda (Hoyle). A large flower; lower petals lilac rose; top petals dark maroon, margined with rose.

Hubert (Hoyle). Lower petals bright rosy purple; top petals a large maroon blotch, and a margin of purplish crimson.

Vesper (Cant). A very striking flower, having a *white ground*, and on each petal a dark spot, which are very distinct and beautiful.

Conqueror (Beck). Fine shaped flower, with a light centre; lower petals orange-scarlet, with a dark spot on each; top petals nearly black, with a fiery crimson margin.

Lydia (Beck). Fine form, and light centre; lower petals flesh colour, with a small red spot on each; top petals a rich dark maroon, with a crimson margin.

Laura (Beck). A large and good formed flower; lower petals a rich pink; top petals a large black spot, with its edges streaked, shading off to crimson and pink.

(To be continued.)

ON THE CULTURE OF ACHIMENES COCCINEA, AND OTHERS OF THAT SECTION.

BY MR. WILLIAM MASON, GARDENER, CLIFFE HALL, NEAR MANCHESTER.

HAVING promised to send you an account of my mode of cultivating the *Achimenes coccinea*, *elegans*, *formosum*, and others of what are termed the minor growing section, the last time I had the pleasure of accompanying you through the hothouses and greenhouses at Cliffe gardens, on which occasion you so much admired the specimens we had then in bloom, I now with pleasure fulfil my promise. As, however, able articles have appeared on the culture of these most interesting and beautiful plants, I fear that the treatment I am about to describe will not now be so likely to be of any material service to the general readers of your interesting magazine: however, it may be of service to *some* who may not have read what has been previously written on the management of these lovely plants.

In the *beginning of February*, I take the pots that contain the roots of the plants that have flowered the season previous, and carefully take away the surface soil till the small tubers appear. I then fill the pots up with a compost of peat soil, light loam and leaf soil, and give the whole a gentle watering. I then place the pots in a fruiting pine-stove or hotbed frame, the temperature of which is kept from 70° to 85° of heat. I give water *sparingly* for about ten days, but afterwards more freely, so as to effectually moisten the whole of the soil to the bottom of the pots, which will have become dry from having been kept during the winter without water.

When the shoots have attained the height of about three inches, I turn the bulbs out of their pots, and carefully break them till I can divide the young shoots. I then select the strongest, and retain *all the roots* attached to them, and plant singly into sixty-sized pots, in

the same compost as recommended for earthing up the pots, with the addition of one-fifth fine clean sand. I grow the plants in a moist heat and in a *slight shade*, and every day, towards evening, sprinkling them overhead and *underside too* with a syringe or the fine rose of a watering-pan. As they advance in growth and fill their pots with roots, I frequently repot them into pots a size larger till I finally remove them, the strongest plants into *sixteens* and the others into *twenty-fours*, using the same kind of compost, except for the last shifting, at which time I give them pots *two sizes larger*, and I add one-fourth of well-decomposed hotbed manure, using the other part of the compost more turfy and open. I am particular in *draining the pots well* at each shifting with plenty of broken pots, and to the depth of one inch at least at the last potting. I examine them at each removal, and take away any suckers that may appear about their stems, and also two or three of their lowest side branches; this tends to strengthen the main stem, and encourages them to make fine symmetrical pyramidal heads. After they are well established, and are beginning to produce flowers, I place them, some in a cooler stove, and others in the greenhouse, being careful that they enjoy as much light as possible, which I find materially enhances the richness and brilliancy of their flowers, and adds much to their general lustre.

After they have done flowering, I gradually withhold water, but do not cut their stems away till they have entirely died down. I keep the dormant roots in the pots, on a shelf in the greenhouse, without any water, till they are again wanted to vegetate.

By the above treatment, my plants of the above-named kinds form bushes from two feet high and eighteen inches through, being both close and elegant, *covered too* with a mass of bloom. I usually have my plants to bloom too from June to November. The vigorous large-leaved section of *Achimenes* I grow *single* plants as large as good-sized currant bushes. I will send the mode of treatment for another month's number.

THE GEOGRAPHICAL DISTRIBUTION OF PLANTS.

BY MR. FRANCIS.

THERE are some plants which are found in nearly every country, others are found in only one spot, while more are scattered here and there, throughout particular regions and districts. Some are particular to mountains, others to valleys, plains, woods, streams, bogs, and barren ground. Some grow only upon chalk, others on limestone, gravel, sand, or mud. Some require to be in a state of continual moisture, while classes flourish best in a dry and sandy desert, or upon the face of a naked rock. Strong light is injurious to many, but is absolutely necessary to a far greater number. On a subject extensive as this is, volumes might be written, without exhausting it. The utmost we are enabled to do, is to briefly notice a few general characteristics of the vegetation of distant places. Each country—we may say each village—

has its own peculiar flora, and the plants of one situation are not those of another.

It is admitted as a general fact, that a high temperature is the most favourable to vegetation. Hence, in the tropical regions plants luxuriate, and species abound more majestic in character than those in temperate or cold latitudes. It is nothing uncommon for the tropical trees to attain a height of 150 to 300 feet; and the very grasses, which with us are small and insignificant, are there of gigantic magnitude. The bamboos and canes grow to an astonishing size. The palms, a tribe wholly unknown as natives of our countries, claim the tropics as their own. To them also we are indebted for all those plants which have a spicy and aromatic flavour. These favoured regions give birth to a thousand elegant climbers, and myriads of parasitic plants, of beauty and brilliancy, to which other countries produce no equals. Even the very forest trees are evergreen, and covered in their season with large, handsome, and fragrant flowers. When we cultivate any of these plants, their size is, in our conservatories, far from equalling that which they attain in their native woods and jungles. Yet indiscriminate praise is scarcely just even here. The tropical fruits are too sweet and luscious, and the majority of them far inferior in grateful flavour to those cultivated in our own country. There is neither wheat to gild the fields, nor vines to yield the grape. Their plants are magnificent, varied, and stupendous; but they have nothing of that concentrated beauty, innocence, and charm, which appertains to those of our own hedgerows and flowering knolls.

Proceeding from the tropics southwards, and considering the large continent of Australia, we find its vegetation curious, but scarcely handsome. The leaves of the shrubs are mostly harsh, hard, and dry. Their flowers certainly peculiar, but their fruit good for nothing. Here the tribes of mimosa, protea, and Banksia are extremely prevalent—the lily tribe equally rare, while in the southern extremity of Africa, under the same degree of latitude, the irideæ, amaryllideæ, and liliaceæ, hold extensive sway. The country of the Cape of Good Hope may be justly called the richest botanic garden in the world. Not merely the monocotyledonous plants above mentioned, but other classes are found in endless variety. Of the endless family of the heaths we have brought to this country more than 300 species. The stapelias and other succulent genera abound in the sandy deserts—beautiful varieties of the geranium family, and of the mesembryanthemum, nestle on every bank, or climb unheeded over every thicket; yet the “queen of flowers” is absent—no rose greets the traveller’s eye in any part of the southern hemisphere. The islands of the South Sea have their peculiar or general produce. The bread fruit, the banana, and papaw tree—many of the myrtle and nettle tribe and gigantic reeds abound inland—the cocoa nut fringes the shore, and the yam creeps along the sandy beach. Passing to the north of the equatorial regions, we direct our attention to China and Japan. Of these countries, as well as of the centre of Asia, generally so little is

known, that it were in vain to attempt a description of their productions; but in respect to China and Japan, the exquisitely beautiful camellias—some species of which afford the tea of commerce; the *hydrangea hortensis*, the sweet-scented olive, the *pyrus Japonica*, the *Salisburia adiantoides*, the *Weigela rosea*, and that common and favourite variegated shrub, *aucuba Japonica*—all now common in our gardens—serve to show the botanical riches which there abound. China, too, is supposed to have been the original country of the sugar cane, the rice, and the orange. Persia is by no means rich in objects of botanical interest; yet it yields the rose in endless variety—the jasmine forms their hedges—the fig, the apple, and the pistacia nut compose their forests, while melons of much luxuriance are cultivated in the fields. The northern countries of Africa partake of the general character of tropical vegetation. In the moist districts grow the date, the banana, and numerous other palms, while in the deserts nought but the succulent aloes, the mis-shapen cactus, the prickly euphorbia, and other similar plants, are able to survive the long drought to which they are exposed.

Southern Europe is rich in varied, valuable, and beautiful plants. Greece is still a place of flowers, as of song. Italy has been called the "Garden of Europe." Syria and the Mediterranean Islands yield to no country in the beauty and variety of their plants. Spain, Portugal, and France, have each their own productions. In northern Germany, Prussia, northern Russia, Sweden, and Norway, immense forests of larch, pine, and fir-trees, crown every steep, and the juniper and the cloudberry are scattered over every hill. A few degrees of additional latitude diminish materially the number and character of species. In Lapland, we have no longer smiling fields, and hedge-rows green. A dreary waste, with now and then a stunted pine, a dwarf birch, a few scattered grasses, and occasionally a little flower, more hardy than the rest, are all the flowering plants that relieve the monotony of the scene. These little plants are known as alpiners. They are seldom furnished with a stem, but have leaves immediately annexed to the roots—such are primroses, the saxifrages, sempervivums, &c.

In the New World the same general laws are in action, though the vegetables are different from those of the old. The flora of Spitzbergen is as scanty as that of Lapland. Canada and the northern parts of the United States give rise to immense forests of the coniferous family; while the under-ground is composed of bilberries—no heaths attend them, however, as with us. The middle and southern states abound with an infinite variety of oaks, the tulip tree, and the fragrant magnolia. Mexico, Chili, Peru, the West Indies, and countries of correspondent latitude, are tropical in produce. Brazil scarcely less so, while the extreme of the continent, Patagonia furnishes but a few scattered conifers. Thus, a regular gradation in the character of the plants is plainly discernible, from the North Pole to the Equator, and thence to the southern extremity of the world; and an enumeration of the number of species in a few of the countries will show an equal

gradation in amount, as in character. It has been computed that the number of flowering plants growing at Spitzbergen, about 80° of north latitude, is about 30; in Lapland, under 70° of latitude, there are 534; in Sweden 1,300. This extends from the southern parts of Lapland to 55° north latitude; 2,000 in the direction of Brandenburg, between 52° and 54° latitude; 2,800 in Piedmont, between 43° and 46°; nearly 4,000 in Jamaica, between 17° and 19°; in Madagascar, situated between 13° and 24° south latitude, more than 5,000 species of plants have been discovered.

In rising above the level of the sea, vegetation suffers modifications analogous to those we observe in advancing from the equator to the pole. The phenomena, which in the latter case proceed by imperceptible degrees, are strongly marked, and rapidly succeed each other on the sides of mountains. A height of from 12 to 15,000 feet in the hottest countries, produces changes as strongly marked as the distance of 6,000 miles, which separates the equinoctial from the hyperborean regions. Tournefort observed, at the foot of Mount Ararat, the plants of Armenia—a little higher those of Italy and France—still higher those of Sweden. Similar observations have been made of the Caucasus, the Alps, the Apennines, and other mountains of the old continent.

The common oak grows on the plains nearly level with the sea; it ascends the sides of mountains until it reaches the height of 5 or 6,000 feet. Its vegetation is much less majestic as it approaches these heights, where it ceases to grow. The beech only appears at an elevation of 1,800 feet, and finishes its course 600 feet below the oak. The yew-tree is seen at 4,200, reaching as far as 6,000 feet, and the Scotch fir ranges between 6 and 7,000 feet.

The growth of these trees being arrested, shrubs with dry leaves, low and sometimes creeping stems, which remained concealed under the snow in winter, begin to show themselves. These are rhododendrons, mezerions, some species of the willow, the dwarf birch, and the juniper. After these we soon meet with small plants, with perennial roots, their leaves in the form of a rosette, and with naked flower stalks. We first perceive various of the gentians, primulas, *saxifraga umbrosa*, *aizoon*, &c. Then the *ranunculus alpestris*, *nivalis*, *parnassifolius*, the *aretia alpina*, and at last the *ranunculus glacialis*; the *saxifraga cæspitosa*, *oppositifolia*, and *Groënlandica*. The last-mentioned plants, mixed with various of the lichens and funguses, attain an altitude of 10,000 feet, and are bounded only by the limit of perpetual snow. Soil, exposure, degree and quantity of moisture, with intensity or deprivation of light, all exert their influence, and modify the natural productions of a district. Our own country exemplifies the remark. Scotland is bleak and mountainous: its plants are of an alpine character—the heath covers the hills; the pine, birch, and beech, compose its woods and hang from its rocks.

Cumberland, Yorkshire, and the Midland Counties, yield species unknown more northwardly. Barley and oats, cultivated in Scotland,

yield to the wheat of England ; the fir is supplanted by the oak ; the viviparous and small grasses and rushes, peculiar to the mountain tops, diminish, and give place to the luxuriant herbage of a milder and lower region—while in the sunny fields of the south, of Kent, of Surrey, and of Devonshire, merry England is seen in all its beauty ; not a hill but is luxuriant—not a valley, nor a hedge-row, nor a river's bank, but is profusely garnished with some of those little lovely flowers which Britain calls her own. One species greets us here, another there—one smiles from a cliff, another blushes from the stream—one, as if conscious of its beauty, offers itself boldly to our view—another, like the violet or the lily of the valley, seems to hide itself only that it may be sought for ; yet, when found, how large a share of fragrance does it yield, and what simple loveliness of aspect and perfection of organisation does it not disclose !

PLANTING TREES AND SHRUBS IN THE PLEASURE GARDEN.

BY A GARDEN ARCHITECT.

THE present season of the year being that in which the laying out and planting of pleasure gardens is usually carried on, and as it is an operation of considerable gardening importance, not merely for the present, but for the future too, to do it as effectually as circumstances admit of, both in forming the ground and arranging the trees, shrubs and flowers, I am induced, as a constant practitioner, to forward some hints in furtherance of so desirable an object.

The style of this sort of a pleasure garden very much depends on the extent, situation, and character of the ground, that I can only, in this place, offer more than general remarks.

The plants which stand nearest the dwelling must be of the dwarfier kinds, and of the most beautiful sorts. The trees, also, should be selected so as to correspond with the style of building. The villa shows best when surrounded by light ornamental trees, such as the birch, the acacia, the sumach, the laburnum, and cypress ; and a clump of poplars and mountain ash interspersed in the front part, to exhibit their pendant heads of scarlet berries, may sometimes be introduced, so as to break the line, with good effect. The cottage may have more rustic trees ; while to the castle belong the oak, the ash and the pine : the mansion admits of all at their proper distance, and in suitable situations.

One of the most important things in planting is to attend particularly to the shades of green, especially where the view from the house or lawn catches the trees. Flowers, which Pliny calls the joys of the trees, continue but for a short period, in comparison to the duration of foliage ; therefore, the picture should be formed by judiciously contrasting the greens. Even the effect of perspective may be considerably increased by the proper arrangement of hues. Trees whose leaves are grey or bluish tint, when seen over or between shrubs of a

yellow or bright green, seem to be thrown into the distance. Trees with small and tremulous leaves should wave over or before those of broad or fixed foliage. The light and elegant acacia has a more beautiful effect when its branches float over the firm and dark holly or bay-tree. In some situations the bare trunk of trees may be shown; in some it should be concealed by evergreens and creepers. Vines, also, may be suffered to embrace it, and form natural festoons, where the extent of ground will allow of wilderness scenery. In all situations nature may be assisted, but should never be deformed by clipping; for ingenuity ought to be employed to disguise art, not to expose it.

The beauty of plants cannot be displayed when they are too much crowded; as they are then drawn up into unnatural shapes. Therefore, the oftener open spaces can be admitted, the more will the shrubs exhibit themselves to advantage, and the more cheerful will be the walk; for it becomes insipid and gloomy when confined for any distance. The winds also claim our attention. Care must be taken so to arrange the position of the trees, that only those gales which are most congenial to the growth of particular plants should be allowed access to them.

The undulating appearance of a plantation will be considerably assisted by a gradual progression from the lowest shrub to the highest tree, and again, from the highest to the lowest. But, as some shrubs will not flourish under certain trees, their respective situations demand consideration. These shrubs may indeed exist under such unfavourable circumstances, but their unhealthy appearance will never be pleasing. Where the shade of any tree is too powerful for laurel or privet to thrive, ivy may be planted with advantage, if it be desirable to cover the ground with evergreen.

In proportion as the shrubbery or plantation recedes from the dwelling, it should become more rural in its character, more especially if the house be in the cottage style. Here climbers, and such plants as require the support of others, are to be introduced. The most delightful groups in a pleasure-ground are generally those where nature, freeing herself from the shackles of art, depends only on her own assistance for support. Her beauty is chiefly to be seen there, where her various creations combine spontaneously, and without restraint.

The means by which these plants raise themselves up, so as to offer their flowers to the sun, are as various as they are curious, and they seldom blossom whilst trailing on the ground. The ivy and bignonia ascend by the help of little fibres, which fix themselves to the bark of trees or crevices in walls so tightly as to render their disengagement a difficult thing to be accomplished without injury to the trunk or building they are attached to. The honey-suckle, like the hop, twines itself spirally around the trunk or branches of trees, and often clasps them so closely as to make an impression on the hardest timber. Others, as the vine and passion-flower, rear themselves by means of corkscrew tendrils, which hold so fast that the strongest winds seldom disunite

them from their support. Some plants climb by means of a hook in their leaf-stalk, or have a kind of vegetable hand given them, by which they are assisted in mounting, as the pea and several others.

To return from this digression.—The sombre, gloomy walk of yew, cypress, or holly, should lead to the spot from which there is the most beautiful prospect, or to the gay parterre, where Flora has diffused her flowery beauties; as the contrast, particularly if sudden, adds greatly to the cheerfulness of the terminating view.

Bad taste is seldom more conspicuous than when we see trees or plants marshalled in regular order, and at equal distances, like beaux and belles, standing up for a quadrille or country dance. Where the situation will permit, four or six lilacs should be grouped in one place, and as many laburnums in another, so as to give effect in various parts by a mass of colour.

The guelder rose should appear as if escaping from the dark bosom of evergreens, and not a plant should be set in the ground without adding to the harmony of the whole. A shrubbery should be planted as a court or stage dress is ornamented, for general effect, and not particular and partial inspection. Boldness of design, which seems to be more the offspring of nature and chance than of art and study, should be attempted; but though boldness is what the planter should aspire to, all harshness, or too great abruptness, must be avoided, by a judicious mixture of plants whose colours will blend easily into one another.

The most beautiful shrubs should occupy the most conspicuous and prominent places. For instance, a projecting part of the plantation should be reserved for the purple rhododendron, the flaming azelea, and other bog plants. Here it must be observed, that unless proper soil be provided for these American plants, the cost of the shrubs will be lost, as they will soon decay when not placed in earth congenial to their nature. With these shrubs may be planted the hardy kinds of heath, as the same soil suits both species. With respect to evergreens, considerable judgment is required, in order to relieve their uniform appearance during winter. This may be done by skilfully arranging different kinds, and those with variegated leaves, or such as retain their brilliant berries during the cold months.

However, a well planted shrubbery depends not so much for its beauty on the expense or rarity of the plants it contains, as on the selection of trees and shrubs which succeed each other in blossoming throughout the year, or whose various-coloured fruits grace them for the longest duration of time. We shall, therefore, not dwell upon those plants alone that are the ornaments of the summer season, but also point out some that will contribute to the gaiety of morning and evening of the year; so that the gloom may be banished at all times as much as possible from the grove, and nature's repose shortened between the plaintive good-night of autumn and the cheerful good-morrow of spring.

The subject will be resumed in another number of this magazine.

OBSERVATIONS ON THE IMPORTANCE OF AFFORDING
TO PLANTS A SEASON OF REST.

BY KEWENSIS.

THE vast importance of affording to plants a season of repose, as well as one of stimulation and excitement, is sufficiently attested by a glance at the arrangements of nature; where we may continually observe some plants receding to a quiescent state, and others springing up with vigour, and rapidly unfolding, and developing their peculiar grace or beauty. It is in connection with this branch of the floricultural art that the study of the geography of flowers becomes important; for, though all plants require, and naturally receive, a season of rest, yet the circumstances under which it is brought about, no less than its duration, becomes a subject of diversity, almost as endless as the nature of the plants themselves. The Cacti of Mexico, the bulbous progeny of the Cape, and the commonest weed in our own country, all require and enjoy their own peculiar season of repose, the difference being only in degree, and not in principle; and even in the most favoured parts of the world, the *Tierra templada* of Mexico, where, at the height of 4,000 to 5,000 feet, there reigns continually the genial climate of spring, the excess of heat and cold being alike unknown—even in this favoured region the same principal is in operation: for at Xalapa, which forms part of it, the *Ipomœa purga*, a native of woods there, is found to die down annually in precisely a similar manner to our own *Convolvuli*. In the case of evergreen shrubs, in our own stimulating climate, where, notwithstanding coldness, we have continually a degree of humidity, almost sufficient to keep the vegetable kingdom in a state of excitement—even here, these trees and shrubs, if not as in other cases positively reduced to a stationary condition, yet have their vital energies so far subdued for a season, that they may be said to enjoy a repose peculiar to themselves, accompanied, and perhaps produced in this case, by atmospheric coldness.

It is not, however, a depression of the ordinary temperature that constitutes at all times the winter of the vegetable race; for we sometimes may observe plants, especially bulbous-rooted ones, die down entirely during the summer months, and spring up again either on the return of autumn or spring. In tropical countries, dryness, more particularly than coolness, is a mark of the resting season; the summer being, on the other hand, excessively humid. In extra tropical countries the variations of heat and cold, aridity and humidity, are considerable, occasioned generally by local causes. Some tracts of country, which in winter are excessively cold, are during summer intensely hot; such is the case at Bagdad, in some parts of Persia, America, and Mesopotamia; whilst at the Cape, where the temperature does not undergo such fluctuation, the periods of dryness and of deluging rains are found to alternate with each other. The Karroos, a very extensive district of plain country at the Cape, are submitted to this kind of alternation; they are destitute of running water, with a soil of clay and

sand lying on the solid rock. In the dry season this is reduced, by the action of the sun upon it, to nearly the consistency of a brick; the tribes of succulent plants have alone the power of remaining green, the bulbs and iridaceous order being decayed, and beneath the surface; notwithstanding the heat, they are able to survive beneath the sun-burnt crust, because it is now that they are enjoying a state of repose, to which nature has submitted them, and which appears to be necessary to their existence. As soon, however, as the wet season returns, these bulbous roots are reached by the rains, they swell while in the bosom of the earth, and at last develope themselves so simultaneously that the before desert plains become at once converted into a seat of verdant beauty. After these the *Mesembryanthemums* and *Iridaceæ* display their brilliant flowers; but these in a few weeks disappear, their verdure fades, and hard dry stalks alone remain; the rains have ceased, the hot sun of August, when in those latitudes the days begin to lengthen, complete the destruction of the stragglers which were left, and the plain again sinks into aridity and desolation. In other parts of the globe the temperature is considerably increased during the season of rest, of which the Canaries afford an example; whilst in tropical countries the seasons of growth and rest are equally marked by the periodical rains and alternate drought.

From what has been said, it must be evident that the cessation of growth in plants is a most important phenomenon, occurring equally in hot and cold countries, and, therefore, not applicable in its artificial adoption to one particular class of plants, but alike to all; under no circumstances ought it to be overlooked, for there can be no really good gardening where this is either neglected altogether or unduly attended to.

It will have become evident, that the rest of which we are speaking is brought about in one of two ways; either by a considerable depression of the ordinary temperature, or by a degree of dryness, under which vegetation becomes suspended. The former generally takes place in temperate latitudes, and the latter in more tropical regions: but both are assimilated, in a greater or less degree, in all latitudes; and hence arises the importance of geography in gardening, to enable a person, when once made acquainted with the name of the locality from whence a new or valuable plant is brought, to imitate not only the temperature, but also the variations of its seasons.

The way in which the physical powers of vegetables are affected by this, becomes a question of importance, and the following will supply the necessary information:—"The long days, bright light, and elevated temperature of summer, having pushed the powers of vegetation to their limits, towards the end of the season excitability becomes impaired, all the vessels and perishable parts are worn out; leaves choke up, and can neither breathe nor digest; and the system of a plant, by the exhalation of aqueous matter, becomes, as it were, dried up and exhausted. At that time, the temperature keeps falling, and light diminishing, till at last, upon the arrival of winter, neither

the one nor the other is sufficient to excite the vital actions, and the plant sinks into comparative repose. At this time, however, its vital actions are not arrested; if they were, it would be dead, or absolutely torpid: they are only diminished in intensity. The roots continue to absorb from the soil food, which is impelled slowly into the system, whence it finds no exit; it therefore gradually accumulates, and in the course of time refills all those parts which the former summer's expenditure had emptied. In the meanwhile, the excitability of the plant is recovered by rest, and may be even conceived to accumulate with the food that the absorbent system of the roots is storing up. At length, when the temperature of the season has reached the requisite amount, excitability is once more aroused, an abundance of liquid food is ready to maintain it, and growth recommences, rapidly or slowly, in proportion to the amount of excitement, the length of previous repose, and to the quantity of food which had been accumulated.

In hot countries, where winter (in its general acceptance) is unknown, the requisite periodicity of stimulus and rest is provided for by what are called the dry and the rainy seasons; the former being equivalent to the winter, and the latter to the summers of the northern latitudes."—*Theory of Horticulture*.

The adaptation of these principles in the cultivation of exotic plants, forms one of the most important offices of the gardener; but it is not in this way alone that the knowledge of the benefit of resting plants becomes subservient to his interests. One of the tasks which he has to perform, and one of the most precarious, is that of producing both flowers and fruit, at an unnatural season, and having learned that he cannot do this successfully, without previously affording his plants an imitation of winter, he puts this knowledge into active exercise; and hence it is that he removes his lights from the vineries and peach-houses, and places them which are removable in a northern situation, and deprives them of a portion of their fluid food. The effect of this treatment is to arrest the growth of the plants, and to favour the deposition of the matter necessarily required for the produce of the succeeding season. It is by this knowledge of the proper time and mode of resting flowering plants, that they are brought to bloom at seasons altogether foreign to their natural habits; and in the cultivation of all plants it is the means of increasing, both in quantity and quality, the blooms produced by an individual plant. It is this knowledge that enables the culturist to receive with satisfaction and assurance what to him are the unknown productions of foreign lands, and which enables him to cultivate them in their artificial habitations, and sometimes to eclipse the splendour which they assume in their native habitats.

REMARKS ON THE COMPARATIVE MERITS OF POROUS AND GLAZED FLOWER POTS.

BY THE FOREMAN OF A LONDON NURSERY.

THE construction of garden pots having of late been a subject of some public interest, and opinions having been advanced, which, to say the least in their favour, have novelty on their side, it becomes a matter of importance to watch rather closely the arguments which have been advanced in their support, in order that some idea may be formed of the nature and extent of the claim which they have upon the attention of the cultivator.

As far as regards the shape and proportions which are recommended, I think them the best that can be devised, whether their usefulness or elegance be taken into consideration; but as regards the other particulars of their construction, I am inclined to believe, that however plausible the arguments may be which are brought forward in their support, there will be many obstacles to hinder their adoption. I do not think that the objection urged against porous pots, on the ground of their absorbing qualities, which would afterwards prove deleterious to plants placed in them, has much force; for, supposing and allowing, as has been remarked in a previous number,—viz., that of the stinking roots of an *Acacia*,—allowing that in this instance the effect would be injurious, it must at the same time be borne in mind that not one in a hundred of the plants cultivated in pots impregnate those pots with any unpleasant smell; and in the case of those which are so circumstanced, if laid by for a time and exposed to the action of the weather, the objection would be entirely groundless.

The objection that the pots in common use are inelegant and unpicturesque, may have some force when they are placed in situations intended as decidedly ornamental. So far the glazed pots recommended by your correspondent, "*Londinensis*," might be deemed preferable.

He further remarks, that "as regards nursery and forcing departments, where pots are little seen except by workmen, the common porous flower-pot may answer;" so that here is a plain admission that it is not to their use for the purpose of culture, but in an ornamental point of view, that he objects to the use of porous pots. "For the finer ornamental plants," he continues, "whose habits require compost and treatment almost as various as the countries they come from, it is necessary that the pot should be as clean as a drinking cup, so as in no way to interfere by admixture of its properties with the compost proper for the plant." This, although sounding very plausible to the ear, I cannot regard as having any weight as an argument, believing that if decency and cleanliness are strictly kept in practice, as they ought to be, there is nothing in the ordinary use of pots which can be absorbed so as to contaminate the soil which might afterwards be placed within them, to the injury of even the most delicate-rooted plants.

As regards the objection to placing the roots of various plants, originally inhabitants of earth, air, and water, all promiscuously in

contact with burnt clay, very little of reflection will be sufficient to convince any one that the same remarks would apply equally to any other kind of pots, whether glazed or otherwise.

The use to which glazed pots seem most applicable, by the nature of their composition, is that of the cultivation of aquatics, and bog or marsh plants; the effectual prevention of evaporation through their sides and bottom, would, in all probability, render them well adapted for these kinds of plants, and, in this respect, the use of crockage as drainage might also, in all probability, be readily dispensed with.

One objection to glazed pots, in the culture of many kinds of plants, even if there were no other with which to oppose them, is the smoothness of their inner surface; any one who has paid attention to the rooting of plants in pots, must be aware that many kinds delight to root amongst the broken crockage, and about any irregularity of surface in the pot: this would appear to have some assimilation with the fissures of rocks, in which it is known that some kinds delight to root; and, if this be the case, the smooth glazed pots, and the absence of all crockage, as recommended, might render them still less valuable.

The great objection, however, to glazed pots, is the simple fact that they are *not porous*, and this brings me to notice briefly the advantage of those in common use over those recommended by "*Londinensis*." The air is composed of certain gases, which are taken up by and are the food of plants; these gases are absorbed in various forms, both by the roots and leaves of plants; and therefore it is that, in a certain degree, atmospheric air is as necessary to the spongioles as it is to the foliage of the vegetable race; hence the deep burying of the roots of trees, which is found to be injurious, and is accordingly deprecated; and hence it is, also, that in the culture of those trees in which horticultural science is more immediately concerned, we find shallow borders *now* recommended, and the roots to be disposed in such a position as to be near the surface of the soil: the reason of this is, that the air may penetrate the soil sufficiently to reach the spongioles, so as to be taken up by them as food. In the culture of plants in pots, the porosity of the sides of the latter will permit the atmospheric air, composed of vital gases, to penetrate through into the soil, and thus the healthiest roots are always found in contact with the pot; but in the case of glazed pots, this percolation could not take place, and the surface of the soil alone would be exposed in any degree to the action of the atmosphere; consequently the plants would be deprived of a great portion of their nourishment. This would not be a matter of importance, provided that the roots could extend themselves horizontally to their full extent, as in that case a sufficiency of air would penetrate through the soil; but it must be recollected that the roots of plants in pots are not so circumstanced, but, being checked by coming in contact with the pot, they are obliged to descend, and, therefore, the whole surface of the pot becomes to them an equivalent to the surface soil enjoyed by an unconfined plant. Were it possible to combine in a garden pot the transmission of air through its sides, and yet to check the too rapid

evaporation which sometimes takes place, such a combination would be the *ne plus ultra* of pot manufacturing.

SUCCESSFUL PLANTING OF EVERGREEN TREES AND SHRUBS.

BY A BAGSHOT NURSERYMAN.

THE subject of successfully transplanting evergreen trees and shrubs having been inquired about by several correspondents, I forward for insertion in an early number of the *Cabinet* the following remarks thereon, being the result of a thirty years' observation and practise as a nurseryman, who cultivates upwards of twenty acres of evergreens.

It is admitted that the leaves of a tree contribute to the production of roots, consequently the period when they exert the greatest influence in that particular is the best period to plant in. From October to January, it is evident, the leaves of evergreens are in their state of maturity, and then possess the greatest power of active agency, and are best prepared to sustain the effect of a removal, as well as contribute to a re-establishment of the plant. Another advantage in planting at this season (or as near as circumstances will admit) is, that the state of the atmosphere is more congenial by being moist and cool, instead of as is generally the case, more or less at other seasons, being in a dry and parching condition. I admit that early in spring the atmosphere is not so objectionable as at a late period of it. The condition too of the soil in autumn is better than in spring, the effect of the summer's sun giving it internal warmth, which, as is well known by gardeners, has a good deal to do in promoting an immediate pushing of the fibrous roots into fresh soil. Any person placing a thermometer imbedded several inches deep in the soil in October, and then again in March, will find that at the latter period it is many degrees lower than at the former. The advantage of a higher temperature, in connexion with the congenial state of the air, is of the first importance to success.

In transplanting, every fibrous root that can must be retained, and as much soil adhering thereto. At whatever time the planting takes place, the soil should be well watered to cause it to settle closely to the roots. Where these latter attentions, and sprinkling over the tops are paid, and successively followed up, planting may with some success be performed at other seasons of the year; but after an experience with many hundred thousands of evergreens, in all kinds of situations, I can safely recommend the season I do as that in which they may be far more successfully transplanted than at any other, and the extra trouble necessarily required when done at an unfavourable time, even to secure a very partial degree of success, is avoided. Where evergreens are planted in situations much exposed to cutting winds, a temporary screen during winter is of essential utility. Such may be constructed of fir or other branches interwoven through palings, &c.

MISCELLANEOUS.

EXHIBITION OF HOLYROCKS.—A most extensive show of these noble flowers was held at the Surrey Zoological Gardens, on August 22nd. The quantity and *superb quality of the flowers* "very far exceeded" those of any former exhibition which has been held in London, and, we may safely add, anywhere else. The size of many of the blooms, perfection in form, and substance in petals, were really marvellous, and displayed the vast improvement which has within but a few years been effected with this magnificent genus. To the following collections were awarded prizes:—

Nurserymen, &c.—1st prize (of eleven spikes), Mr. Bircham, of Hedenham, near Bungay, in Suffolk, who exhibited, Yellow Model, Pourpre de Tyre, Solfaterre, Felicia, Unique, Comet, Criterion, Lilac Model, Queen of Denmark, Brennus; these were large, clean, even, and of first-rate quality. 2nd. Mr. William Chater, of Saffron Walden, Spectabilis, Admirable, Lady Braybrooke, Sulphur Queen, Walden Gem, Meteor, Joan of Arc, Pouppe de Tyre, White Globe, Hon. Mrs. Ashley, Comet. 3rd. Mr. C. Turner, of Slough; Orestes, Duchess of Sutherland, Pouppe de Tyre, Yellow Model, Souvenir, Eugenia, Eva, Emperor, Walden Gem, Mrs. Foster, Charles Turner. 4th. Messrs. A. Paul and Son, Cheshunt, with Pourpre de Tyre, White Globe, Lizzy, Magnum Bonum, Charles Baron, Beauty of Cheshunt, Sulphur Queen, King of Roses, Metropolitan, Eugenia, Aspacea. Cut blooms in twenty-four distinct varieties. 1st. Mr. Turner, with Agricola, Lizzy, Walden Gem, Susannah, Charles Turner, Emperor, Purpurea, General Bem, Pourpre de Tyre, Orestes, Sulphur Queen, Sir David Wedderburn, Felicia, Hope, Souvenir, Pillar of Beauty, Hon. Mrs. Ashley, Shaded Model, Beauty of Cheshunt, Eleanor, Black Prince (new), Eugenia, Duchess of Sutherland, Ovid. 2nd. Mr. Chater, with Enchantress, Safranot, Black Prince (new), Rosy Circle, Brennus, Mulberry Superb, Golden Fleece, Lady Neville, Seedling, Charles Lidgard, Souvenir, Comet, Eugenia, Seedling No. 2, Hon. Mrs. Ashley, Elegans, Sir D. Wedderburn, Lilac Model, Seedling Yellow No. 1, Walden Rival, General Bem, Emily, Pourpre de Tyre, Sulphur Queen. 3rd. Mr. Bircham.

Private Growers.—Spikes in seven varieties: 1st. Mr. Roake, of Clewer, near Windsor, Julia, Pourpre de Tyre, Sulphur Queen, White Globe, Walden Rival, Beauty of Cheshunt, Hon. Mrs. Ashley. 2nd. George Holmes, Esq., Brooke Lodge, near Norwich, with Elegans, Penelope, Pourpre de Tyre, Lemonade, Warrior, Meteor, Challenger. 3rd. Mr. Benningfield, Broxbourne, Essex. 4th. Mr. Glascock, Bishop Stortford. 5th. Mr. Dyson, Stoke.

Twenty-four cut blooms in twelve varieties: 1st. Mr. Roake with Seedling No. 1, 1854, Ovid, Joan of Arc, Walden Rival, Pillar of Beauty, Hon. Mrs. Ashley, Charles Lidgard, Julia, Pourpre de Tyre, Souvenir, Shaded Model, Sulphur Queen. 2nd. Mr. Long, Watford,

with *Pourpre de Tyre*, *Yellow Model*, *Hector*, *Emily*, *Sir D. Wedderburn*, *Joan of Arc*, *Comet*, *Orestes*, *Susannah*, *General Bem*, *Shadep Model*, *Eva*. 3rd. *Mr. Benningfield*. 4th. *Mr. Grant*, gardener to *R. Fellowes, Esq.*, *Shotesham Park*, near *Norwich*. 5th. to *Mr. Dyson*. The prize for the finest spike was selected from *Mr. Bircham's* collection, and was a beautifully grown *Mrs. Ashley*; it was, however, very closely contested with a spike of *Lady Braybrook*, exhibited by *Mr. Chater*. The best single bloom was exhibited by *Messrs. Paul*, who produced bloom of their *Beauty of Cheshunt*.

There was a number of seedlings; the judges selected *Bircham's Purple Perfection* as the best; this is a full-sized, fine-shaped flower, in the way of *Pourpre de Tyre*, but more purple. It is unquestionably a first-class flower. He showed, too, the following:—*Schamyl*, a dull bronze buff, was awarded a certificate. It is a flower of first-rate form. *Mr. Bircham* also received a certificate for his *Empress Primrose*, which is a valuable acquisition. Also *Jenny Lind*, a good light flower. *Lemonade*, a beautiful smooth flower, pale canary, with purple at the base. *Hidalgo*, *La Fourtinette*, *Bronze Yellow*, *Hedenham Rival*, and *Nugget*. The latter a rich deep yellow, but not of good shape. *Mr. Chater* sent a large fine yellow, No. 1, which will prove a fine acquisition. In the collections we observed some fine seedlings were placed; the best was *Walden Rival*, raised by *Mr. Roake*, a mottled orange, quite new in colour, and of the finest quality. *Julia*, a mottled orange, is attractive in colour, and a showy flower. *Solfaterre* (*Bircham*) is a large clear *Primrose*, or pale yellow, a good spike, and a full close flower.

The following we thought were the best twelve flowers shown:—*Joan of Arc*, bluish-pink. *Comet*, crimson. *Lady Braybrooke*, rich rose. *Beauty of Cheshunt*, light rosy red. *Pourpre de Tyre*, rich purple. *Eugenie*, sulphur and buff. *Charles Turner*, rosy crimson. *Hon. Mrs. Ashley*, bluish. *Julia*, rosy orange. *White Globe*, pure and large. *Purple Perfection*, a very deep colour, and *Walden Rival*, mottled orange.

PELARGONIUMS shown at the **ROYAL BOTANIC SOCIETY, REGENT'S PARK**, on May 24th, occupied two sides of the lower series of terraces, and being generally well grown they made a good display. 1st, *Sanspareil*, *Colonel of the Buffs*, *Challenger*, *Exactum*, *Mochanna*, *Magnificent*, *Lablache*, *Rosamond*, *Queen of May*, *Enchantress*, *Virgin Queen*, and *Magnet*; 2d, *Governor Leah*, *Purpleum*, *Vanguard*, *Gulielma*, *Arethusa*, *Pasha*, *Delicatum*, *Glow-worm*, *Empress*, *Rosamond*, and *Ambassador*. **Fancies**, six varieties: 1st, *Madame Sontag*, *Madame Rosati*, *Defiance*, *Delicatum*, *Anais*, and *Princess Maria Galitzin*; 2d, *Defiance*, *Fairy Queen*, *Delicatum*, *Signora Casolini*, and *Odoratum magnificum*. **Amateurs**: 1st, excellent plants of *John Bull*, *Duchesse d'Aumale*, *Fairy Queen*, *Statuiski*, *Madame Meillez*, and *Princess Maria Galitzin*; 2d, *Advancer*, *Jenny Lind*, *Empress*, *Alboni*, *Triumphant*, and *Hero of Surrey*; 3d, *Mirandum*,

Jenny Lind, Fairy Queen, Delicatum, Advancer, and Princess Maria Galitzin. This class consisted of no fewer than nine collections, all of which were very creditable to their respective growers.—Amateurs: 1st, Purple Perfection, Alibi, Lucy, Enchantress, National, Ariel, Eleanor, Queen of May, and Rosa. These, as will be seen, were mostly new sorts; 2d, Constance, Clio, Norah, Emily, Forget-me-Not, Lalla Rookh, Virgin Queen, Ariadne, Prince of Orange, and Enchantress.

Among SEEDLING PELARGONIUMS were Grand Sultan, a sort with dark top and rich red lower petals, each of the latter having a dark spot—a striking kind, with a good habit. Pandora, similar, but less attractive, and without spot on the lower petals. Una, a good useful white, in the way of pearl. Petruchio, a large showy crimson; but coarse and thin. Conqueror, like the Grand Sultan and Pandora in colour, and good in quality, and attractive. Wonderful, a large flower of fine colour and form, throat white. Serena, dark, with pale centre, very promising. Lord Raglan, in the way of Salamander, and therefore very showy; and Topsy, top petals very dark.

Shown on *June 21st*.—Nurserymen. 1st, for twelve, Majestic, Exactum, Ringleader, Magnet, Rowena, Juliet, Virgin Queen, Optimum, Beatrice, Topsy (upper petals absolutely black), Ganymede, and Enchantress. Second, Vulcan, Delicatum, Neatness, Ajax, Rosamond, Arethusa, Ambassador, Diadem, Star, Harriott, Exhibitor, and Mont Blanc. Third, Alonzo, Selina, Eurydice, Constance, Optimus, Mochanna, Cuypp, Nandee, Electra, Star, Pandora, and Conspicuum.—Clark's were Orion, Conspicuum, Narcissus, Pearl, Magnificent, Vandyke, Forget-me-not, Virgin Queen, Boule de Feu, Centurion, Alonzo, and Bertha.

In collections of ten. Sunrise, Ariel, Phaeton, Autocrat, Cloth of Gold, Optimum, Magnet, Enchantress, Attractive, and Purple Perfection. 2nd, Carlos, Star, Claudiana, Pearl, Nora, Enchantress, Magnificent, Mochanna, Sarah, and Centurion. 3rd, Cordela, Rowena, Pride of the Isles, Optimus, Virgin Queen, Astrea, Exactum, Pulchra, Novelty, and Star. 4th, Constance, Pride of the Isles, Centurion, Negress, Bertha, Salamander, Magnet, St. Swithin, Nectar Cup, and Rowena. 5th, Centurion, Beauty of Montpelier, Constance, Mary, Conspicuum, Magnificent, Magnet, Loveliness, Alderman, and Satisfaction.

FANCY GERANIUMS, six.—1st, Gaiety, Perfection, Delicatum, Beauty Supreme, Celestial, and Barbette. 2nd, Magnum Bonum, Fairy Queen, Richard Cobden, Princess Marie Galitzin, Cassandra, and Celestial. 3rd, Advancer, Madame Ugald, Princess Marie Galitzin, Fairy Queen, Delicatum, and Clara Novello. 4th, Princess Alice Maud, Reine de Français, Formosissimum, Alboni, Richard Cobden, and Perfection. 5th, Magnifica, Parodii, Statuishi, Duc d'Aumale, Prince Albert, and Fairy Queen. 6th, Queen Superba, Electra, Empress, Caliban, Modesta, and Reine de Français.



HOLLYHOCKS.—Now make new plantations of these noble flowers. Auriculas and Polyanthus, Carnations, Pinks, &c., should be placed in their winter quarters, in a dry, sunny, sheltered spot, where a free circulation of air can be admitted on all proper occasions. Any plants out in the open beds, as Lobelias, &c., should be taken up and potted, for winter preservation, in pits, frames, &c. Chrysanthemums grown in the open ground, and required for blooming in-doors, should be taken up as entire as possible, and be potted with due care. All tender kinds of plants, as Scarlet Geraniums; Verbenas, in fact every kind requiring winter protection, should be housed *immediately*; it is bad policy to put it off a single day longer. All plants like light; place them as near to the glass as convenience will allow. Prepare the Tulip-bed.

DAHLIAS.—Let the *crown* of the roots be covered with a few inches deep of soil around the stems. Beds of Pansies be made. Shrubs of all kinds may be planted. Roses now planted **SOON PUSH NEW ROOTS**, and become well-established before winter; the soil being somewhat warm, excites the roots immediately. Pinks, also, may be planted in beds.

SHRUBS. &c., FORCING FOR WINTER BLOOM.—Such as are to bloom early should be gradually prepared, potted immediately, if required, and, by the middle of the month, introduce such as are desired to bloom by Christmas, into the house or pit. The kinds which are well-deserving such attention are Roses, Honeysuckles, Jasmines, Poinsettias, Azaleas, Kalmias, Persian Lilacs, Andromedas, Tree Carnations, Pinks, (of which Anne Boleyn is the best), Rhododendrons, Rhodoras, Deutzias, Ribes, Spirea Prunifolia, Mezereums, Gardenias, Cupheas, Heliotropes (the new blue is fine), Scarlet Pelargoniums, Cactuses, Eranthemums, Justicias, Salvias, Gesnerias, Correas, Chinese Primroses, Aconites, Mignonette, Primroses, Cinerarias, Stocks, Persian Iris, Crocuses, Cyclamens, Sweet Violets, Hyacinths, Lilies of the Valley, &c. Seeds of many annuals should now be sown in the border, and others in pots; such will bloom early next spring. Brachycoma, Schizanthus Retusus and Hookerii, Rhodanthe and Salpiglossis seeds now sown in pots, plants potted off when strong enough, will bloom vigorously next spring.

IN THE GREENHOUSE, &c.

If the stock is not housed, it ought to be done *immediately*. Care must be taken so that one plant may receive something like its proper treatment without interfering materially with the well-being of its neighbours; and the tender ones must be placed in the best part, for protection from cold wind, &c., Pimeleas, Leschenaultias, Aphelexis, Boroneas, Gompholobiums, and Diosmas, are injured by being placed where there is a *current* of wind. Let each plant have all the space possible, and the robust large-leaved kinds, and the very slender delicate sorts should be kept as *separatè* as can be arranged, so as to allow a due circulation of air. Be careful that the pots, &c., be perfectly clean before arranged for their winter situation. Repot Cinerarias, &c. Let Camellias which are to bloom early be placed in a warmer situation, also any Chinese or Indian Azaleas, so that they may be gradually advancing. In watering the stock of plants, let it be done in the *early part* of the day, so that any excess may be dried up before evening, and damps be avoided, otherwise mouldiness will ensue. Thin away the flower-buds of Chrysanthemums;

water occasionally with liquid manure. Calceolarias—pot off seedlings to bloom next season.

PELARGONIUMS.—The plants headed down some weeks back, have down pushed shoots an inch or two long; these should be thinned properly. The plants must be repotted, in order to have the roots well established before winter. Shake of the soil, and shorten some of the long roots, so that young ones be promoted, which is essential to the vigour of next bloom. Have a free drainage in the pots. Compost, turfy loam well chopped up, with an equal portion of sandy peat and well-rotted leaf mould, and half the quantity of well-rotted dung. Give air to the plants in the daytime, and be careful not to give over much water at the roots, for if saturated they will be injured. Young struck plants should have the tops pinched off, to cause the production of side-shoots to render them bushy for next season. Repot some of the **SCARLET GERANIUMS** (so called) to bloom during the autumn and winter; they are charming ornaments. So with the *new Tree Carnations*, of which there now are many very beautiful distinct varieties, deserving a place in every greenhouse and sitting-room.

BRIEF REMARKS.

POINSETTIA PULCHERRIMA, AND BEDEWING PLANTS OVERHEAD.—In a recent number of the *Révue Horticole*, a French publication, M. Delaire protests strongly against bedewing hothouse plants, &c. overhead in the morning, or in mid-day, as is practised by some persons. Dew in the open air falls in the evening, clings to plants during night, and disappears after sunrise. In-doors bedewing plants should be in the evening, as at that period there is not any perspiration going on by them, but all the surface is engaged in *absorption*, and thus repairs the loss of fluid during the day-time. What takes place in the open air, similarly occurs in the stove, so far as waste of fluid is concerned, but there is little restoration *there* during night, and the process of artificial bedewing at evening becomes essentially necessary.

M. Delaire has been remarkably successful in the cultivation of the beautiful, showy *Poinsettia pulcherrima*. It was treated as follows:—

It was planted in the open border at the back wall of an Orchid stove. In the spring of 1852 it was a long-legged plant, with four arms, which had been cut back after flowering. These arms had each formed two strong laterals, which, as usual, lengthened without branching. Had the plant been then left to itself, as is often the case, the specimen would have been poor and starved. But each lateral was pinched back to three eyes, from which secondary branches soon proceeded, which, in their turn, were pinched back like the others, and the same process was repeated till the month of October. By this time the shrub had formed a heap of verdure above six feet wide, and had more than 100 branches, each of which produced its tuft of scarlet plumes. What a magnificent plant it was! M. Delaire bedewed this plant in the evening, and the soil was a mixture of peat, decayed vegetable mould, and loam in equal parts.

NATIONAL TULIP SHOW, Royal Botanic Gardens, Regent's Park, May 24th.—*Stands of Six Blooms.*—1. Mr. Parkyn, Derby, with Pilot, Triomphe Royale, Gibbons's Salvator Rosa, Heroine, Sovereign, and Maid of Orleans. 2. Mr. Lawrence, Brown's Ulysses, Bloemart, Triomphe Royale, Maid of Orleans, Arlette, and Glory of Abingdon. 3. J. Thornilly, Esq., Maid of Orleans, Heroine, Charles X., Queen Charlotte, Lachesia, and Pilot. 4. Mr. J. F. Wood, of Nottingham, Platoff, Heroine, Norwich Baguet, Sir Joseph Paxton, Aglaia, and Queen Charlotte. 5. Mr. Spencer, Sovereign, Victoria Regina, Heroine, Captain White, Lord Denman, and Triomphe Royale.

Stands of Twelve Blooms.—Amateurs.—1. Rev. S. Creswell, Radford, Nottingham, with Polyphemus, Bloemart, Prince Arthur, Aglaia, Lady Denman, Strong's King, Vicar of Radford, Princess Royal, Sphinx, Triomphe Royale, Mary Lamb, and Prince of Wales. 2. R. H. Betteridge, Esq., Countess of Harrington, Glory

of Abingdon, Madame Catalani, Royal Sovereign, Mary Anne, La Belle Actrice, Triomphe Royale, Thalia, Triomphe du Monde, Everard, Polyphemus, and Claudiana. 3. Mr Sanders, Victory, Earl Douglas, Claudiana, Enchantress, Acapulca, Thomas Brown, General Barneveldt, Marcellus, Ariadne, Maid of Orleans, Duchess of Sutherland, and Surpasse Catafalque. 4. J. Thornilly, Esq., Charles X., Rufus, Heroine, Antagonist, Gibbons's Salvator Rosa, Princess Sophia, Polyphemus, Princess Royal, Triomphe Royale, Criterion, and Surpasse Catafalque.

Stands of Eighteen Blooms.—1. Mr. Lawrence, Hampton, Middlesex, Dickson's Duke of Devonshire, Madame Vestris, Nora Creina, Polyphemus, Rose Lucetta, Bloemart, Elthiron, Captain White, Lady Wildair, Thalia, Earl Douglas, Mountain Sylph, Triomphe Royale, Queen of the North, Pilot, Lawrence's Sarah, Maid of Orleans, and Vivid. 2. Mr. J. F. Wood, the Coppice, Nottingham, Apelles, Walker's King, Vicar of Radford, Triomphe Royale, Beauty of the Plain, Brown's, Salvator Rosa, Sir J. Paxton, Magnum Bonum, Heroine, Aglaia (flame), Lady Denman, Rembrandt, Everard, Vivid, Kate Connor, Aglaia (feather), Queen Charlotte, and Lady Flora Hastings. 3. Mr. C. Turner, Slough, Bucks, Chellaston Rose, Bijou des Amateurs, Pilot, Alexander Magnus, Claudiana, Princess Royal, Mary Lamb, Hamlet, Madame Vestris, Vivid, Thalia, Triomphe Royale (flamed rose), Optimus, Acapulca, Captain White, George Glenny, Chellaston Beauty, and Polyphemus.

Premier Prizes.—Flamed Bizarre, Pilot, Mr. Parkyn, Derby. Feathered Bizarre, Royal Sovereign, Mr. Godfrey. Flamed Bybloemen, Lord Denman, Mr. Godfrey. Feathered Bybloemen, Victoria Regina, Mr. Spencer. Flamed Rose, Triomphe Royale, Mr. Turner.

Class Showing.—Flamed Bizarres.—1. Pilot, Mr. Godfrey. 2. Ditto, ditto. 3. Polyphemus, Mr. Lawrence. 4. Everard, Mr. Thornilly. 5. Pilot, ditto. 6. Polyphemus, ditto. Feathered Bizarres.—1. Sovereign, Mr. Godfrey. 2. Plattoff, Mr. Lymberry. 3. Sovereign, Mr. Godfrey. 4. Sovereign, Mr. Spencer. 5. Magician, Mr. Houghton. 6. Sovereign, ditto. Flamed Roses.—1. Triomphe Royale, Mr. Godfrey. 2. Ditto, ditto. 3. Triomphe Royale, Mr. Spencer. 4. Triomphe Royale, Mr. Parkyn. 5. Triomphe Royale, Mr. Lymberry. 6. Ditto, ditto. Feathered Roses.—1. Heroine, Mr. Godfrey. 2. Heroine, Mr. Spencer. 3. Heroine, Mr. Godfrey. 4. Ditto, ditto. 5. Heroine, Mr. Houghton. 6. Monument, Mr. Lymberry. Flamed Bybloemens.—1. Princess Royal, Mr. Houghton. 2. Queen Charlotte, Mr. Spencer. 3. General Barneveldt, Mr. Thornilly. 4. Sarah Anne, Mr. Creswell. 5. Nepaulese Prince, Mr. Lymberry. 6. Queen Charlotte, ditto. Feathered Bybloemens.—1. Maid of Orleans, Mr. Lymberry. 2. Maid of Orleans, Mr. Godfrey. 3. Maid of Orleans, Mr. Creswell. 4. Black Diamond, T. Adams, Esq. 5. Victoria Regina, Mr. Spencer.

ROSES ON THE MANETTI STOCK.—I have lately seen the most beautiful little rose garden, in the picturesque grounds of J. Morris, Esq., at Sandgate, I ever beheld. Its history is as follows: for twenty years this spot had been appropriated to roses, and the soil, being very light and sandy, became at last so exhausted that roses budded on the dog-rose refused to grow, even with abundance of manure mixed with the soil. As a last effort, the ground was cleared of all the dead and dying roses last November, some manure was applied, and the soil was well stirred. Three hundred young dwarf rose trees, all budded on the Manetti, were then planted. Their luxuriance is now quite remarkable; I never saw such beautiful growth or finer flowers. So vigorous are their young shoots that they will, to a certainty (as they are nearly all hybrid perpetuals), give a succession of flowers till November. This, for a rose garden which has been planted barely nine months, is, I think, a fact worthy recording. It is indeed great encouragement for those, and there are many, who have failed in cultivating roses in light and exhausted soils. It is also most interesting and rare to see such beautiful roses thus flourishing only 200 yards from the sea.—*Rosa.*





1, *Potentilla Wellingtonia*.
2, *Potentilla striata formosissima*.



" Give back the flowers! the fair, the bright,
That opened with joy on the morning light,
And play'd with the zephyr that wander'd by,
Loading its wings with fragrancy;
Ashadow rests on the stricken bowers.
Give back, in their freshness, the sweet spring flowers!

Give back the flowers! the maiden there
Hath nought to wreath in her glossy hair;
And childhood sighs for the garland made
From the dew-gemmed bloom of the forest glade;
To breathe of joy on the festal hours,
Give us back in their beauty the summer flowers!"

ILLUSTRATIONS.

POTENTILLA WELLINGTONIA.

POTENTILLA WELLINGTONIA.—This magnificent variety was raised in the nursery establishment of Messrs. E. Henderson and Son, of Wellington-road, St. John's-wood, London. The plant is a *profuse bloomer*, and its extraordinary flowers, being as large, or larger than a crown piece, of a beautiful orange and deep crimson margin, renders it exceedingly ornamental. It merits a place in every flower garden.

POTENTILLA STRATA FORMOSISSIMA MULTIFLORA.—This most beautiful hybrid, we understand, was raised in the nursery establishment of Mr. Van Houtte; its large and *handsomely striped* flowers render it a most distinct and valuable acquisition, worthy a place in every flower garden.

This handsome flowering genus of hardy herbaceous plants has, of late years, had an addition of several most superb seedlings, which have amply repaid for the attention given by the raisers—a dozen very distinct sorts, comprising the following colours, viz., scarlet, yellow, white, rose, black, pink, orange, maroon, buff, and crimson; being either

shaded, spotted, margined, striped, marbled, or self coloured. They may be procured at a cheap price; and being hardy, growing readily in any good lightish loamy soil, readily preserved or increased, and blooming in profusion all the summer season, often up to winter, render them deserving a place in every flower garden.

NOTES ON NEW OR RARE PLANTS.

BOUGAINVILLEA SPECTABILIS.—*The showy flowered.*—A native of South America. The main trunk is quite woody, *tree-like*, having numerous branches. It is a half climber, usually grown in the stove, and succeeds best when trained to a wall. There is a magnificent plant growing in a border, and trained against a back wall in the Jardin des Plantes at Paris, which blooms most admirably every year. Another plant bloomed in the Conservatory at Chatsworth (being the first that bloomed in England), in 1844. Recently a plant, five years old, has blossomed in a vinery (belonging to Mrs. West, near Christchurch in Hampshire), where grapes are ripened without fire, trained in a fan-shaped manner against the back wall, the roots confined in a comparatively small pot. The great beauty of the plant is not in the *petals of the flowers themselves*, which have not any beauty to recommend them; but their charm is in the *large bracteas* or (*floral leaves*), which are borne in vast profusion, the branches being literally loaded with them; producing a most striking effect. In respect to colour, however, they are exceedingly variable, those of the Chatsworth plant being of a *deep purple*; on Mrs. West's, a full bright rose colour; one belonging to M. Choisy has them quite green, which he has named. *B. virescens*; and in others of a *brick-red*; whilst in the new one, called *B. splendens*, they are of a beautiful orange colour. Mr. Tweedie, who had seen trees in blossom in their own country, says, "the trees seem all on fire with them."

In consequence of each of these several plants having flowers so distinct in colour from the others, they have been sent out as *SPECIES* instead of *varieties* (which they certainly are) of *B. spectabilis*. The names given are *B. virescens*; *B. pomucea*; *B. peruviana*; *B. glabra*; *Josepha augusta*; and *Josepha augusta glabra*.

Any, or all, the above merit a place in every stove or warm conservatory. The flowers are produced near the termination of the branches or side shoots, each having *three* large coloured leaves (bracteas, leaves under the corolla), the three forming the appearance of an overblown tulip, whose length of cup is nearly three inches. The real petals, form a very *narrow tube*, one to two inches long, of a yellowish green colour, situated at the centre of the coloured bracteas. (Figured in *Bot. Mag.*, 4810.)

CALYCANTHUS OCCIDENTALIS.—A handsome shrub, from California, discovered by Mr. David Douglas, who sent it in 1831 to the Horti-

cultural Society. It is perfectly hardy, but when trained against a wall it promotes the ripening of the shoots, and in proportion is the profusion of flowers. The wood is equally as fragrant as that of the common allspice (*C. floridus*), but the habit of the shrub is very different. The plant grows erect, stout, smooth. Leaves, oval, heart-shaped, five to six inches long. Flowers scentless, from three to four inches across, each petal about two inches long, and half-an-inch broad, strap-shaped, stamens numerous, forming a yellow eye; the petals are of a bright brick-red colour, very showy. A plant of it, nearly three yards high, with an eastern aspect, blooms freely from August to the end of October. It is a valuable acquisition. (Figure in *Bot. Mag.*, 4808).

MYRTUS BULLATA, *blistered leaved*.—An erect growing shrub, a native of New Zealand. It attains the height of from 15 to 20 feet. The leaves in size and shape are very like those of the common tree-box, with the surface much waved; they are very numerous, and the shrub blooms in profusion, flowers as large as our commonly called double-blossomed myrtle, having four petals, white deeply tinged with rosy red on the outside, and *filled up* with its numerous stamens. In our climate we find it necessary to have it in the greenhouse or pit-frame during winter, but, very likely, would stand uninjured in the open air in the south-west part of England, and in the warmer parts of Ireland. The leaves are particularly wavy above, and purplish beneath, and when bruised, very fragrant and aromatic. It blooms at Kew during the summer months. (Figured in *Bot. Mag.*, 4809).

ESCHSCHOLTZIA TENUIFOLIA, *slender leaved*.—(Synonyme *Chryseis tenuifolia*). It is of a close compact habit, much branched near the base, and crowded with its very narrow leaves. The flowers are yellow, each cup-shaped blossom an inch across. It forms a dense bushy plant, about six inches high, and blooms in profusion. Very neat and handsome, deserving place in every flower garden. (Figured in *Bot. Mag.*, 4812).

WHITLAVIA GRANDIFLORA.—Natural Order Hydrophyllaceæ. A very beautiful *hardy annual*, a native of California, where it was first noticed by Dr. Coulter. It is somewhat of the habit of the *Eutocas*, but much handsomer. It is much branched, and the flowers, bell-shaped, are about half the size of those of the Canterbury Bell, of a rich blue colour, borne in terminal racemes, and in profusion. It is a very valuable acquisition for the flower garden, and ought to be in every one, where it will become as universal a favourite as the *Nemophila*, &c. (Figured in *Bot. Mag.*, 4813).

CEANOTHUS LOBBIANUS.—A *hardy*, moderately sized, erect shrub, a native of California. It blooms in profusion, in terminal capitate racemes; the flowers are of a rich deep blue, spangled with golden anthers. It is an elegant plant when in bloom, and exceedingly ornamental during the summer. (Figured in *Bot. Mag.* 4810.)

ACHIMENES PICTURATA.—The flowers are of the form of those of *A. multiflora*, but are of a brilliant colour, rose, marked with darker spots,

similar to the *A. picta*. It is exceedingly handsome. (In Mr. Van Houtte's establishment.)

APHELANDRA PORTEANA.—The leaves are of a beautiful green, ornamented with silvery-white metallic-like nerves. The flowers are of a beautiful orange colour. (In Mr. Van. Houtte's establishment.)

ISOLOMA DECAISNEANA.—A most abundant bloomer; and the flowers are of a bright vermilion, with zebra-like stripes of yellow, very beautiful, deserving a place in every stove.

LAVIANDRA HOIBRENNII.—The leaves are large, tinged over with a beautiful red; the flowers are exceedingly handsome, of a rich blue colour. A fine stove plant.

GLOXINIA AGAR.—An extra grand white, with a rich amaranth throat, and very superb.

G. DON PEDRO.—The limb has a large and beautiful rose border, which is well defined; at the inside of it is a very distinct ring of bright carmine, and, next to it, a second ring of a deeper colour. The inside of the tube portion of the flower is white. Very fine flower.

G. DR. REICHENBACH.—An extra large and handsome flower, a rich and beautiful blue, with a large primrose-yellow throat.

G. ERECTA-LINEATA (in the form of *Fyfiána*).—The face of the flower flat, and very regular at the edges. The outside of the blossom white, streaked with rose; and inside a white, with a regular line of fine rose. A very handsome variety.

G. ERECTA-MARMOREA.—A large neat flower, white, with the face quite even, and beautifully striped with rose, the outside ground is white. Very handsome.

G. HECLA.—An enormous flower, blue, with a black and white throat, very fine.

G. L'ÆTNA.—A bright cherry colour outside, and the inside white; very handsome.

G. MADAME LEGRELLE D'HANIS.—The flower is very round in front, rose on a white ground, with six blotches of carmine at the entrance of the throat. Very neat and handsome.

G. NOVELTY.—Flower white, with a broad rim of rich blue at the mouth.

G. M. BORSIG.—Flower an immense size, rose, with the throat shaded with amaranth. Very fine.

G. PRINCESS MARIA.—A very large white flower, with all the inside a fine blue. Very pretty.

BIGNONIA MARMORATA.—A beautiful greenhouse climber; the fine green leaves are handsomely marbled with white. It blooms freely too, trained to a wire frame, or against a trellis, pillar, &c.

CAMELLEA SALICIFOLIA, *willow leaved*.—The leaves are long and narrow, and the young ones are *deeply tinged* with red. It is very handsome, even if without a flower.

CANNA LILUFLOA ALBA, *lily-like flowered*.—The flowers are large, *pure white*, and partake of the form of the common white lily of our gardens. It is a fine plant, flourishing in the greenhouse.

AZALEA RINZII. An hybrid raised between an *Indian Azalea* and the old hardy yellow-flowered *Azalea pontica*. Its flowers are of a brick-red colour.

POTENTILLA AURANTIACA SUPERBA.—The flowers are large, of a rich orange colour. It is very handsome.

CULTURE OF TRITOMA UVARIA.

BY MR. C. WINCHESTER, OF OSBORNE, ISLE OF WIGHT.

The love of flowers is a sentiment common alike to the great and to the little; to the old and to the young; to the learned and the ignorant; the illustrious and the obscure. While the simplest child may take delight in them, they may also prove a recreation to the most profound philosopher. There is not a plant but, upon minute investigation, will reveal some peculiar beauty or some exquisite adaptations to reward the attention bestowed. "Behold the LILIES of the field, how they grow; they toil not, neither do they spin; and yet I say unto you, that Solomon, in all his glory, was not arrayed like one of these." How surely would Solomon have agreed with this beautiful speech; for that his "wise heart," loved the flowers—the LILY especially—is evident from numerous passages in his Songs. The object of his love, in claiming a supreme dignity of beauty, exclaims, "I am the Rose of Sharon, and the Lily of the Valley."

The plant which is the subject of this communication—viz., *Tritoma Uvaria*, belongs to the natural order LILIACEÆ, and ranks amongst the most gay and interesting of our flower-garden ornaments. It is an evergreen herbaceous plant; and though introduced from the Cape of Good Hope so far back as the year 1707, is yet comparatively little cultivated in our own country. In the course of my peregrinations, I have rarely ever met with it; and where, in one or two instances, I had the good fortune to see it, I found it in anything but a flourishing or perfect condition. When so found, however, it forms an object of surpassing beauty. About four years ago, I received a small plant of it from the Royal Gardens at Kew, which, after growing some time in a pot, was turned out, in the spring of 1851, into an open border having a north-east aspect, but sheltered from the south-west winds, which are very prevalent and destructive here, by a terrace wall. Here it appeared to be at home, for it grew vigorously; and, in the autumn of the following year, it rewarded me with a few heads of bloom, giving an earnest of what was in store for me when the plant itself should be more fully developed. This year, my brightest hopes, with respect to this plant, have been realised. At the present time, it is the most conspicuous object among the many plants by which it is surrounded. Its flower-stalks, which number twenty-four, are thrown well above its flag-like and graceful foliage, some of them rising to the height of five feet, and sufficiently strong to bear, unsupported, the magnificent display of blossoms

which cluster round their summits for a *considerable* length. It is a plant which, whether viewed from a distance or in close proximity, cannot fail to captivate, while it must be regarded as one of the brightest gems ever introduced from that rich world of floral loveliness, the *Cape*. Those whose object in flower-gardening is to combine beauty with effect, cannot do better than grow this plant extensively, for it will be sure to reward them for any labour or skill bestowed on its cultivation. It appears to delight in a deep, rich, loamy soil; and, as a proof of its capability to resist frost, I may mention that it withstood the *severity of last winter uninjured*. It merits a place in every flower-garden, and will prove one of its most striking ornaments to the end of the season.

REMARKS ON THE HEALTHINESS OF THE ROOTS OF PLANTS BEING ESSENTIAL TO THEIR SUCCESSFUL GROWTH.

BY A PRACTICAL GARDENER.

As the roots of plants are *the chief medium* through which they receive nourishment, some account of their structure, and of the curious and simple mode by which they effect their object, will, I hope, prove of some utility to the readers hereof.

The root may be defined to be that portion of a plant which grows in an opposite direction to the stem; and differing from the latter in its remarkable downward tendency, and from its disposition to shun the light of day. So powerful, indeed, is this tendency to descend, "that no known force is sufficient to overcome it." The chief object of the root appears to be that of fixing the plant firmly in the earth, and of taking up a supply of moisture from the humid medium by which it is surrounded. It usually consists of several ramifications, from the sides and extremities of which, without any apparent order or regularity, proceed an indefinite number of delicate fibrils with spongy points. Now these fibrils are the only true roots, and to their soft extremities (spongelets) is consigned the whole office of absorbing fluid; the more woody portions of the root merely serving as canals, to convey the fluid thus obtained to the upper parts of the plant. The roots generally pierce the soil in a downward or horizontal direction, according to the individual habit, but more especially in that course which offers the least resistance, and yields the greatest quantity of soluble food. Hence the propriety of *mulching* is by some gardeners called into question, because the richness of the mulching material, and the warmth produced by its fermentation, has a tendency to attract to the surface the young fibrils. And then, upon the removal of the manure employed in the operation, their extremely succulent and tender tips become exposed to the influence of draught, &c., than which nothing can be more injurious, as it quickly destroys their absorbing power, and thus deprives the

plant of its chief source of nourishment. It has been said that the fibrils are the only true roots, and that the feeding function is chiefly consigned to the lax tissue of their extreme points. That this is really the case, there can be no reasonable cause to doubt, or why should the success of planting depend so materially upon their preservation? it being a well-known fact, that subjects of any size, such as fruit trees, are invariably less prolific the first season after transplantation, than on the previous and ensuing years. Why these little spongelets should possess the power of absorbing moisture with great force, and of transmitting it to every part of the plant, is a curious question, and has given rise to many ingenious conjectures. But it has at length been satisfactorily answered by that clever French author, M. Dutrochet. If a small glass tube, having its end covered with a piece of bladder, be partially filled with gum-water, and then plunged into simple water, sufficient to wet the outside of the bladder, the latter will be permeated by the water, and the volume within the tube will continue to increase, so long as the density of the fluids on each side of the intervening membrane remains unequal. "But there is also a contrary current to less amount,—the interior fluid passing out to mix with the surrounding water." The first and more powerful of these currents is called endosmose (flow inwards), and the second and less powerful, exosmose (flow outwards). The cause of their motion was by Dutrochet referred to galvanism; but it is now more generally believed to arise from "the attraction exerted between the particles of the different fluids employed, as they meet in the porous membrane."—(Dr. Reid.)

"Now the conditions requisite for this action are two fluids of different densities, separated by a septum or partition of a porous character. This we find in the roots. The fluid in their interior is rendered denser than the water around by an admixture of the descending sap; and the spongeole (or spongelet) supplies the place of a partition. Thus then, as long as this difference of density is maintained, the absorption of fluid may continue. But if the rise of the sap is due to the action of endosmose, there ought also to be an exosmose. This is found to take place; for if a plant is grown with its roots in water, the fluid surrounding them is soon found to contain some of the peculiar substances they form, and which are contained in the descending sap: thus a pea or bean would disengage a gummy matter; a poppy would communicate to the water an opiate impregnation, and a spurge would give it an acrid taste.

"Thus we see how beautifully and how simply this action, extraordinary as it seems, is accounted for, when its whole history is known, on principles which operate in other departments of nature."—(Dr. Carpenter.)

From this it must appear obvious to every one that, to keep plants in a healthy state, the conditions of endosmose and exosmose must be carefully maintained. Thus in the case of bulbs maturing and at rest, and of plants cut down in the autumn, such as *Pelargoniums* and *Fuchsias*, the actions of the leaves being destroyed, the fluid, rising by

the force of endosmose, must gradually subside, and the plants languish into a state of semi-vitality, till such time as genial warmth shall expand the fluid within their latent buds, and cause them to open and put forth new leaves. This is the reason why the application of water to plants thus circumstanced should be carefully avoided, excepting, indeed, a few special subjects, whose succulency is not sufficient to keep them from being shrivelled up.

THE BEAUTY OF DOUBLE SWEET WILLIAMS.

BY A COUNTRY CLERGYMAN.

For the last five years, I have been collecting and growing all the varieties of *double-flowered Sweet Williams* I could obtain. I now have upwards of fifty very dissimilar and beautiful varieties, varying in gradation from a white ground spotted with red, crimson, and purple, through the various shades of pink, rose, lilac, purple, scarlet, and crimson. I need not attempt to eulogize the flowers of this beautiful and lovely tribe; all admire Sweet Williams, and especially the double kinds. By proper attention in culture, I have my flowers not only very double, but three-quarters of an inch across; and these produced in fine corymbose heads, give a fine effect, especially so when the fine colours are so distinctively arranged as to have the best contrast. They are beautiful, whether grown in masses or singly, and well merit a situation in every flower-garden.

Two years ago I had about twenty varieties; and, procuring from Germany a packet of seed, saved from the best varieties grown by a celebrated florist, who had paid much attention to these flowers, I have been so successful as to increase my stock of real double-flowered to fifty-seven very distinct kinds.

I grow mine in a good, moderately rich, loamy soil, upon a dry subsoil. I increase them by taking off slips in July; these soon strike root in pots placed under a hand-glass, or in a frame, inserting them in a moist, yellow sand: they would most likely root as well in sandy loam or sandy peat. I pot them singly towards the end of September, and keep them in a dry cool frame during winter, turning them out entire at the end of March.

I can strongly recommend these lovely flowers to the notice of all persons who desire to have beautiful dwarf flowers for ornamenting the flower-garden. Some of my varieties I procured at nursery gardens, and others I met with in the gardens of various friends, to which I have added eight splendid seedlings of my own raising.

CULTURE OF POINSETTIA PULCHERRIMA.

BY AN EXTENSIVE GROWER FOR SUPPLYING COVENT GARDEN, BALLS, &c.

THIS noble flowering plant is fully deserving the most earnest attention and careful management, in order that it may be so grown as to pro-

duce its flowers as perfect in our stoves as those grown at Philadelphia, where, it is stated, the beautiful scarlet whorls of bractæ which terminate the branches measure as much as twenty inches across, and are equal in colour to the finest tints of the richest China Rose.

It is decidedly a *splendid feature* among our ornamental winter blooming plants, and, from its habit, I am confident it may be cultivated with the application of the common treatment given to stove plants. It must be kept in rather a *close moist atmosphere* in the stove, along with other tender plants, all of which are now and then syringed over, and underneath too, when the weather is fine, in order to prevent the attacks of the red spider or other insects, and the accumulation of filth. In the day, if fine, a free circulation of air is kept up; and at night the temperature of the house averages from 65 to 70 degrees. The soil used, and which seems to suit well, is very sandy loam; in potting, care is taken to ensure a good drainage, and as soon as the roots reach the inside surface of the pot, an additional shift is *immediately* given, so that the growth is never checked, and the plant in consequence is kept continually progressing. It requires a great supply of water at the roots. Plants procured in spring will furnish noble specimens for the following autumn and winter's bloom; and a plant now cut down will supply cuttings which are easily struck in heat, and a stock of young plants for later bloom will be obtained. The large heads of rich crimson flowers are now in much request in London, and are fine ornaments in the dining and drawing-rooms, &c. Also the smaller sized specimens are taken to the assemblies by visitors. To prevent the plants becoming naked about Midsummer, stop the leads, and it induces the production of side shoots. After blooming, give the plants, if to be retained, a few weeks' rest, then re-pot as done with the newly-struck plants. I never keep a plant longer than blooming twice, but I prefer the plants of *first year's* bloom. I strike cuttings every spring.

ON PROPAGATING ROSES FROM CUTTINGS OF THE ROOTS.

BY AN ARDENT ROSE CULTIVATOR, OF CHESHUNT, HERTS.

HAVING been advised to try the experiment of raising rose trees by taking cuttings of the roots, I did so, and found it to succeed admirably. The mode I adopted was as follows:—The first week in March I took some of the long, thick and fleshy-looking roots of my English and French roses, and cut them into pieces about three inches long. I then smoothened the surface of a border in front of a peach wall; upon this I laid the roots flat, at about six inches apart; when the roots were placed, I covered them with fine sifted soil, half an inch deep, gently beating it to the cuttings; I then laid four inches more of loamy soil well enriched with rotten cow-dung, a year old, giving the whole a good watering, and, when dry, smoothened the surface over with the

back of the spade. By the middle of May every cutting had sent one, and some two strong shoots; and, on examination, I found the soil I had covered the cuttings with to be filled with a mass of fine roots. At this time, September 5th, the shoots are eighteen inches high.

I have anxiously watered the bed; being in a sunny situation I found it got dry, more especially so, having the bed raised upon the old surface of the border. It would have been better to have sunk it so as finally to have it even with the surrounding soil.

I have practised the above mode of raising Moss Roses, and similar border kinds, which have been found difficult to increase from cuttings of the wood or young shoots, and have never known it fail. The following November is the best time to take up the young plants, and remove them to beds for flowering, which they will do very freely if taken up with as many fibrous roots as possible, and cut the main shoot back to about eight inches, which will push vigorous new shoots, that will furnish both flowers, and form the basis of a *bushy* plant for future years. *Well-rotted cow-dung* is the best manure for the Rose, being cooler than horse-dung, &c.; a liberal portion of it must be mixed in the soil at planting, also laid over the roots of the plants early in March, and either just pointed in or covered over with a little fresh loam, it greatly improves the vigour of the plants and increases their bloom.

SUCCESSFUL TREATMENT OF THE SWEET-SCENTED CYCLAMEN PERSICUM.

BY A LONDON AMATEUR FLORIST.

I do not remember ever to have met with (but perhaps you may attribute this to a very limited research) any specific directions for the treatment of that beautiful plant, the *Cyclamen Persicum*.

Being an ardent admirer of this plant, not only on account of its general elegance of growth, but from its producing its flowers at a very early season, which thrive and retain their luxuriance even in the atmosphere of a room, I have turned my attention to its particular management for a few years past, and have been far more successful than I have seen elsewhere, in or around London.

The plan of treatment pursued, I have much pleasure in now communicating.

The *Cyclamen Persicum* begins to show its flowers early in the year, and may be said to be in beauty throughout the months of February, March and April, or the two latter, and May. As soon as the flowers fade and droop, the pots containing the plants are placed on their sides (as a precaution against their being watered), in a corner of the greenhouse. In August, the roots are taken out of the pots, and the earth adhering to them being first carefully shaken off, they are planted in an open but sheltered border of the garden, where they are allowed to

remain until the cold forebodes frost; they are then taken up, the fibres being carefully preserved, and are put into pots proportioned to the size of each root; the crown of the plant is well covered with earth, and the compost used consists of two parts leaf-mould, one ditto sandy-peat, one ditto ashes of burnt vegetables, and a small portion of thoroughly-rotted dung. The plants thus potted are then arranged in a cold frame and plunged to the rim in coal ashes. In mild weather, the glass is taken off; but by night, protection from frost, and by day from cold and rough winds, is indispensable. On the flowers appearing, the plants are removed to the greenhouse, and are placed as near the windows as possible, to have the advantage both of sun and air; they are abundantly watered with soft water, of the same temperature as the atmosphere they are growing in, and the leaves also are occasionally well sprinkled; but this operation is gone through in the morning, and the windows of the house are immediately opened, otherwise the leaves would damp off, and the root decay. The pots are well drained with smallish pieces of brick.

In recommending this treatment with the *Cyclamen Persicum*, I can speak with confidence, having, among other good specimens, one plant last spring that produced *eighty-seven* flowers.

Dividing the roots to increase the stock of plants is bad; the roots are a long time recovering the wound thus given, and do not afterwards flower so strong. Young plants are obtained very easily from seed, or can be purchased at a trifling price.

HOW TO DESTROY THE GREEN FLY ON BEDDING PLANTS.

BY MR. W. CURITT.

I NOTICED your excellent remarks on this subject in last month's *Floricultural Cabinet*, and observing the following particulars on the same in a subsequent *Gardeners' Chronicle*, I forward them for your November Number:—During a visit to a friend in Devonshire, about a month ago, I was much struck with the appearance of his parterres, then gay with various bedded plants in the best possible condition; all I had theretofore seen and since inspected were in a very different state, the complaint of green fly being general this season; even in grounds where pains and expense are not spared. On inquiring how this was effected, my friend informed me that he was visited like his neighbours with aphides, but that, so far as regarded low-growing plants, the remedy was speedy, certain, and simple; his plan being as follows:—He has four slight wooden boxes without bottoms, about twenty inches deep, made to fit just within the edging of the divisions of his parterre, all the divisions being precisely of the same size and patterns, so as to admit of a box fitting either one. He places a box upon each, presses down the edge, and through a hole in the end introduces the spout of

his fumigator, and having filled one box with smoke, plugs up the hole and proceeds to another. He uses dried stuff (?) with mixture of tobacco, and fills four boxes with each charge of his fumigator. The smoke being injected cool, he is able to remove the box after four or five hours, taking care to admit the air gradually; and he contrives to smoke three times, or twelve divisions in the twenty-four hours, without causing the bloom to drop, as it would do—and does, in fact—when he uses tobacco paper, or ignites within. I saw one operation performed on the four boxes in about as many minutes, and nothing could be more effective. Now, it has occurred to me since witnessing this that we have the solution of a problem which has puzzled me and others, and that I shall be doing my fellow florists a service by making it known. Hitherto it has been easy enough to fumigate houses and frames, either with the fumigator or by burning tobacco paper and other combustibles in them; and even standard roses I have seen fumigated by covering them with an oil-skin bag distended on a parasol; and, moreover, shrubs and plants of tall growth are often dusted with snuff, or covered with tobacco-water or other solution—all, however, tedious and uncertain operations; but to clean plants, such as Verbenas, &c., pegged to the ground, has hitherto been considered an impossibility. And why should not this plan be applied to borders of any length? It would only be necessary to mark them out in equal divisions, keeping about three inches of space unplanted between each division, and so covering them with boxes made to fit these divisions. Again, market gardeners might avail themselves of the process to fumigate strawberries; and by providing a lot of old casks, with one end knocked out, and past use for other purposes, to be procured very cheap at cooperages, and pitched over; or they could cover their shrub fruit, such as gooseberries, currants, and raspberries, and bring it to market in such a clean state as would give it a preference, while they insured the crop, now often injured and sometimes totally destroyed by aphids and other vermin. I would suggest that, when the divisions of flower parterres are cut in fanciful shapes the covers might be made of tin, fitted to the parterre, and riveted upon an iron frame round the bottom; these being painted occasionally would last for many years.—*M. C.*

CULTURE OF THE SHOW CLASS PELARGONIUMS.

BY A LONDON EXHIBITOR.

I HERE forward a few remarks on the culture of Pelargoniums, which, if followed out, cannot fail of the most complete success. The plan is this. The latter part of May is the best time to strike the cuttings. One great reason that there are so many disappointments in obtaining a fine bloom is owing to the cuttings being struck late in the season, so that there is no time for hardening the plants before winter arrives. The consequence is, the plants are weak and sickly till late in the

following season, and the blooms are few and small. Suppose the cuttings to have been struck at the time I recommend—about the latter part of June—they will require potting off: after this they may be kept in a cool frame for about a fortnight, and then gradually exposed to the full air; they should then be placed on a dry bottom, so that the roots may be prevented from running down into the ground. They should be placed, too, so that they may be screened from the violent heat of the sun for about three or four hours in the middle of the day. They may remain in this situation till the beginning of September, when they must be repotted. This must be carefully attended to. Then place them in a cool frame; they must have the full air all day, and place triggers under the sashes at night. The sashes overhead will prevent slight frosts from injuring them. At this potting most of them will have made very strong shoots; they, therefore, must be shortened to about three eyes; this will induce them to throw out several very strong shoots, about two inches long, by the latter part of October. They may remain in this situation, with proper protection, till the beginning of March, giving but very little water. When they begin to grow, examine them to see if any of them want potting; the strong growing kinds should not be in less than six or seven inch diameter pots. If it be desired to bloom them early, give them a slight lining; but if a little patience be exercised, and not give them much artificial heat, they will amply repay, by a more vigorous and splendid bloom.

If these few remarks on one of our most admired class of plants are carefully attended to in practice, the most desired success will follow. Old plants will not do, neither will younger.

BOTANICAL SUPERSTITIONS AND DELUSIONS.

BY J. B. DONOVAN, ESQ.

THERE is, perhaps, no branch of natural history that has been more fruitful in superstitious fears and observances, or that has longer been an object of attention to the inquiring eye of philosophy, than botany; and in times of ignorance this science harvested a full crop of absurdities. Much good as well as much evil has been attributed, in all ages, and by all nations, to the supernatural agency supposed to reside in certain roots and plants. As the Arabians, living in the desert, from the uninterrupted view of the heavens, became great proficients in astronomy, and, by the eternal and unvarying celestial compass traversed the pathless sands, so, in like manner, shepherds, the earliest inhabitants of most countries, employed the leisure of a pastoral life in studying the natures and properties of plants, and doubtless often amused themselves in filling up the outline of their botanical systems with the help of imagination.

Thus the doctrine of signatures was invented without any sufficient

reason, but that it pleased them to imagine that a fancied resemblance in the shape of the root, leaf or fruit of any plant to any particular part of the human body, must indicate its possessing some beneficial or hurtful power over such corresponding part. For example, a decoction of maidenhair was thought good to wash the head, and to make the hair grow; a similar preparation of quinces, which are a downy, hairy fruit, was also accounted good for reproducing hair that had fallen off. Macassar oil and bears' grease now usurp their place among modern beaux, with, perhaps, as much claim to efficacy.

Balm and wood-sorrel, representing the heart in figure, were, as a natural consequence, cardiacal; but the walnut was a most perfect type, bearing the signature of the whole head, the outward green cortex answering to the pericranium, the harder shell within representing the skull, and the kernel in its figure like to the lobes of the brain, and, therefore, clearly good for mental diseases. "Thus," says Mr. Heydon, in his *Rosicrucian Physics*, "did Divine Providence, by natural hieroglyphics, read lectures to the rude wit of vulgar man, and the disciples of theseraphically illuminated fraternity of Rosicrucian Christians, being sufficiently illuminated from these, found out the rest."

The shamrock, or trefoil, which was used by the Druids to cure diseases, and is the national badge of the Irish, acquired the latter distinction by its having been made an emblem of the Trinity by St. Patrick. When the Pagan Irish were unable to understand the doctrine of three Gods in one, he plucked a trefoil, and asked them, "Is it not as possible for the Father, Son, and Holy Ghost to grow upon one stalk as it is for these leaves to do so?" The argument was deemed conclusive by his hearers.

Each plant or root required a different method; if not religiously adhered to, both in hour and season, its virtue would be sure to fail at the greatest need.

The Druids held the oak in extreme veneration, and most particularly the mistletoe, which was to be cut with a golden knife, to be gathered when the moon was six days old, the priest clothed in white; the portion cut off was to be received on a white napkin, and, lastly, two white bulls were to be sacrificed; and thus solemnly consecrated, the mistletoe was an antidote to poison, and prevented sterility.

Fern-seed was thought to have the power of conferring invisibility; in allusion to which power one asks in an old play, "Had you Gyges' ring, or the herb that gives invisibility?" and in Ben Jonson's "New Inn":—

"————— I had
No medicine, sir, to get invisible;
No fern-seed in my pocket."

The ancients, who often paid more attention to preconceived opinions than to the evidence of their senses, believed that the fern bore no seed. Our ancestors gained one step, and believed it bore seed, which was invisible; hence, from an extraordinary mode of reasoning, founded on

the aforesaid doctrine of signatures, it was thought that they who possessed the secret of wearing this seed about them would become invisible. Fern-seed was said to possess great magical powers, but it must be gathered on Midsummer's Eve. One who went to gather it reported that the spirits whisked by his ears, and sometimes struck his hat and different parts of his body; and at length, thinking he had got a sufficient quantity of it, he secured it in papers and a box, but when he came home he found all empty.

At the period when the belief in witchcraft was a matter of faith, there was scarcely any plant but had some share in its mysteries, especially where its habitat at all corresponded with the baneful effects attributed to it. Thus the *circœa*, or enchanter's nightshade, which was celebrated for the purpose of raising the devil, grew among the mouldering bones and decayed coffins in ruinous vaults.

But beyond all in power was the mandrake. This root was fabled to grow under a gallows, or place of execution, and arose from the fatty matter dropping from the body of the dead, which gave it the shape of a man: a fable somewhat similar to that of the serpent's teeth sowed by Cadmus. It is affirmed, by old authors, that mandrakes do make a noise, or give a great shriek, upon being pulled out of the earth.

"Where the sad mandrake grows,
Whose groans are deathful."

Thus there was great hazard of life to them that pulled up this root. Pliny says, "When they intended to take up the root of this plant, they took the wind thereof, and with a sword describing three circles about it, they digged it up, looking towards the west." Another more cautious authority directs, that he who would take it up, in common prudence should tie a dog to it to accomplish his purpose, as if he did it himself he would shortly die. What prompted these strange conceptions might be the tradition that this root was of great use to Circe, who, by the magic of simples, wrought so many wonders.

The mention made of mandrakes in the thirtieth chapter of Genesis has proved the source of much discussion; though it is quite evident that some other species of plant was spoken of, as being a thing much prized. St. Augustin, who has commented on this passage, says, "It was a great curiosity to behold, as it was very beautiful to the eye;" but wondered why Rachel should set so high a value upon it, unless for its scarceness.

Pliny says, that Pythagoras composed a book on the magical virtues of plants, and first called the mandrake, anthropomorphous, or man-shaped; this gave rise to the common practice of imposing on the ignorant by cutting the roots of briony into such a form. "There are many," says Mr. Martyn, "in several parts of Europe, who carry about and sell roots to ignorant people, which handsomely make out the shape of a man or woman; but these are not the production of nature, but contrivances of art, as divers have noted, and Matthioli plainly detected and exposed. He learned this way of trickery from a

vagabond cheater under his care ; his words are, "That is vain and fabulous, which ignorant people and simple women believe ; for the roots which are carried about by impostors, to deceive unfruitful women, are made of the roots of briony and other plants ; for in these, yet fresh and virent, they carve out the figures of men and women, first sticking therein the grains of barley or millett, where they intend the hair should grow ; then bury them in sand until the grains shoot forth their roots, which at the longest will happen in twenty days ; afterwards they clip and trim those tender strings in the fashion of beard and other hairy teguments." Though much out of repute, even in Martyn's time, he says, "I have had them very gravely offered me for sale."

Another virtue of this root was the power of procuring sleep. Cleopatra thus asks for it,—

"Give me to drink mandragora.

CHARMIAN—Why, madam?

CLEOPATRA—That I may sleep out this great gap of time my Antony is away."

And Iago, having basely deceived Othello, with a malignant joy, adds,—

"Not poppy nor mandragora,
Nor all the drowsy syrups of the world,
Shall ever medicine thee to that sweet sleep
Which thou ow'st yesterday."

The plant which, in its natural form, more faithfully represents an animal, is the Scythian or Tartarian Lamb, or Barometz, in the language of the country ; and, as it grows, it might, at a short distance, be taken for an animal rather than a vegetable production. It is one of the genus *Polypodium* ; root decumbent, thick clothed, with a very soft close wool, of a deep yellow colour, stripes from one foot and a half in length appearing above the ground. It is well known to be a root which, from the variety of its shape, is easily made to take the form of a lamb, which the Tartars call Barometz. In China, it is known by the name of Rufous Dog. Towards one end of the root, it frequently becomes narrower and thicker, so as to give the resemblance of head and neck, and has sometimes two pendulous hanging excrescences, resembling ears ; at the other end is a short root, resembling a tail.

Mr. Bell, in his "Journey to Ispahan," thus describes a specimen he saw :—"It seemed to be made by art to imitate a lamb. It is said to eat up and devour all the grass and weeds within its reach. Though it may be thought that an opinion so very absurd could never find credit with people of the meanest understanding, yet I have conversed with some who were much inclined to believe it ; so very prevalent is the prodigious and absurd with some part of mankind. Among the more sensible and experienced Tartars, I found they laughed at it as a ridiculous fable." Louveiro affirms that the fresh root, when cut, yields a tenacious gum, like the blood of animals, and is used as a styptic to stop the bleeding of wounds.

Dr. Darwin, in his "Loves of the Plants," with poetic licence, adopting the fable, says :—

"E'en round the pole the flames of love aspire,
And icy bosoms feel the sacred fire;
Cradled in snow, and fanned by arctic air,
Shines gentle Baromes, thy golden hair;
Rooted in earth, each cloven hoof descends,
And round and round her flexile neck she bends;
Crops the grey coral moss, and hoary thyme,
Or laps with rosy tongue the melting rime;
Eyes with mute tenderness her distant dam,
Or seems to bleat a Vegetable Lamb."

(To be continued.)

MISCELLANEOUS.

REMARKS ON THE PANSY.—PLANTING IN SPRING.—For this choose a dry day towards the end of March, mark off the intended rows at one foot apart, and when planting, leave a space of at least ten inches between each plant. After planting, it would be advisable to turn a garden-pot over each plant for the first day or two, to shade it from the sun, wind, or frost. If there has been frost during the night, be very careful not to uncover them if the sun be at all likely to shine. Pansies love a moist still atmosphere, and are very impatient of wind; all sudden changes are also very prejudicial. Several of your readers will have remarked that if a hot sun succeed rainy weather, many of the plants begin to droop, and would soon die off if not shaded. The same effect is also produced when a bed previously shaded is suddenly exposed to the heat of the midday sun. If you find any plant thus affected, place a hand-glass over it, and form it into cuttings. But after all due care and attention have been bestowed, it will frequently be found that some of the plants fog off. This has been attributed to the wire-worm; but I have never found that pest at or in the roots of any Pansy I have taken up, which I invariably do when any of the plants fall prostrate. Strength or freshness of the manure, and its being too retentive of moisture, have been assigned as other causes. That this disease has been accelerated by them I have no doubt; but it cannot be the only reason, as they very frequently fog off in poor sandy soils. Perhaps some of your readers can suggest the true cause. Any person who may wish to send flowers for exhibition will be quite unable to compete successfully, unless he covers his beds at least a week previously to each show, to protect the plants from being battered by the wind or rain, or faded by the sun. In hot weather it will prevent excessive evaporation, and in cold keep the temperature more uniform. The

frame for the cover should be at least three or four feet above the bed in the centre, and supported at the four corners on posts, at about eight inches from the surface, to allow the free circulation of air; it may be made similar to a Tulip frame. One of the greatest enemies the Pansy grower has to contend with is the slug; during one night it will make as great ravages among the blossoms as will require a week to replace. The best method to rid yourself of these intruders is to water the bed with clear lime water during the evening, after a shower of rain (when they come out in great abundance); but any person wishing to show must carefully search for them both morning and evening. They generally secret themselves under the leaves or close to the roots of the plants. In order to guard as much as possible against the depredations of slugs, &c., let your beds be edged with slate or stone, which affords no harbour for them, and always looks neat. Never water your beds, even in the driest season; but in its stead, if continued hot weather is expected, I would advise that fresh cow manure be placed round the base of each plant, which, by preventing too rapid evaporation, will be amply sufficient to preserve a due amount of moisture.—*An Exhibitor in London.*

CULTURE OF CINERARIAS.—Compost, two parts of turfy-loam which has been obtained a few months from the pasture, and laid in a heap; this to be broken up by the spade or hand to a rough condition, to which add the other part in equal portions of leaf-mould and well-decomposed cow-dung, got from the field, and the whole have a liberal sprinkling of the usual silvery-white sand. A liberal drainage must also be given; water freely in the period of rapid growth, giving manure-water once a week, and repeat as often as the state of the roots indicate its necessity. Fumigate with tobacco-smoke often, placing the plants in a box, and thus save from the ravages of green-fly. Sow the seed as soon as ripe in a shady border, or in pots placed in the shade; prick off the plants into pots or pans, and put them in a cool frame, which must be closed for a few days and be shaded; as soon as begun rooting give air, and shortly take off the lights. When plants are strong enough, pot them singly. If large spreading plants are desired, stop the leading stem at from four to six inches high, and it will cause the production of side shoots. Keep the plants cool in winter, just from frost, and be careful not to damp them off. Pot into the blooming-pots in January for the general spring bloom, and earlier or later for a bloom accordingly. When the plants have done blooming, and seed collected, cut off the tops, not too close, or the crown will rot, and the plant die. Turn them entire into a shady border, and pot off suckers when large enough.—A LONDON EXHIBITOR NOT YET BEATEN.

FREE BLOOMING GREENHOUSE PLANTS SOMEWHAT HARDY.—Killaloesensis would find any of the following answer his purpose:—*Abutilon venosum striatum*; *Acacia grandis*; *Acacia lineata*; *Acacia pulchella*;

Aphelixis macrantha purpurea; *Begonia Prestonensis*; *Begonia Martiana*; *Boronea pinnata*; *Bouvadia flava*; *Brachysema latifolia*; *Cantua dependens*; Carnations—tree—various; *Coronilla glauca*; *Corrœa speciosa grandiflora*; *Corrœa Brilliant*; *Corrœa picta superba*; *Crowea saligna*; *Crowea stricta*; *Daphne fortunei*; *Daphne japonica*; *Daviesia speciosa*; *Diosma uniflora*; *Diosma speciosa*; *Epacris campanulata alba*; *Epacris hyacinthiflora*; *Epacris hyacinthiflora candidissima*; *Epacris grandiflora superba*; *Epacris impressa alba*; *Epacris impressa coccinea*; *Epacris splendida*; *Erythrina Crista—galli*; *Eutaxea myrtifolia*; *Eutaxea floribunda*; *Gardoquia Hookeri*; *Hovea Celsii*; *Hydrangea japonica variegata*; *Kalosanthus (crassula) coccinea superba*; *Lantana crocea superba*; *Lantana purpurea*; *Leschenaultia formosa*; *Linum tigrinum*; *Mirbelia floribunda*; *Mitraria coccinea*; *Nerium grandiflorum*; *Nerium splendidum*; *Nerium luteum plenum*; *Oxalis elegans*; *Passiflora cœrulea grandiflora*; *Passiflora Bellotti*; *Pimelia Hendersonii*; *Pimelia decussata*; *Polygala grandiflora*; *Primula sinensis pleno—alba*; *Primula sinensis pleno—rubra*; *Salvia gesneriflora*; *Sollya heterophylla*; *Swainsonia galegifolia rosea*; *Swainsonia galegifolia—alba*; *Swainsonia Osbornii*; *Tasconia manicata*; *Tasconia mollissima*; *Tecoma jasminoides*; *Tropœolum tricolor grandiflorum*; *Tropœolum Triomphe de Gand*; *Tropœolum Lobbianum*; *Veronica Andersonii*; *Zichya inophylla floribunda*; *Erica Cavendishii*; *Erica ventricosa coccinea*; *Erica cerinthoides superba*; *Erica Linnœoides superba*; *Erica tricolor elegans*; *Erica grandinosa autumnalis*; *Azalea indica*, various; *Camellias*, ditto; *Geranium (scarlet class)*, ditto; *Pelargoniums*, ditto; *Fuchias*, ditto. Ferns, in great variety. Any of the *Gloxinias*, except *maculata*, will succeed.

CITRONS AND ORANGES.—A long chapter is devoted by Professor Targioni to the *Agrumi*, that is, to the Oranges, Lemons, Citrons, and others belonging to the genus *Citrus* of the family *Aurantiaceæ*. They have long been objects of great interest to the Italians, and the subject of many valuable works, being extensively cultivated for profit wherever the climate will admit of it, and for ornament or curiosity in public or private gardens in the more northern parts of the Peninsula, where they still require protection in winter. They are all of Eastern origin, and mostly introduced into Europe in comparatively modern days, but of very ancient and general cultivation in Asia. The varieties known are very numerous and difficult to reduce accurately to their species, on the limits of which botanists are much divided in opinion. Those who have bestowed the most pains in the investigation of Indian botany, and in whose judgment we should place the most confidence, have come to the conclusion that the Citron, the Orange, the Lemon, the Lime, and their numerous varieties now in circulation, are all derived from one botanical species, *Citrus medica*, indigenous to, and still found wild in, the mountains of East India. Others, it is true, tell us that the Citron, the Orange, and the Lime are to be found as distinct types in different valleys, even in the wild states; but these observations

do not appear to have been made with that accuracy and critical caution which would be necessary in the case of trees so long and so generally cultivated. With regard to the Shaddock (*Citrus decumana*), it is almost universally admitted as a distinct species, although at present only known in the state of cultivation. It must be admitted also that it appears to present more constant characters than most of the others in the pubescence of its young shoots and in the size of its flowers, besides the differences in the fruit; but Dr. Buchanan Hamilton, who is of great authority on such matters, and some others, are inclined to believe that this also may have originated in the *Citrus medica*. This point requires much further investigation, and a better knowledge of the floras of South-eastern Asia, before we can come to any plausible conclusion. Professor Targioni gives copious details of the introduction into Tuscany and other parts of Italy, of many of the varieties there cultivated, for which we must refer to the work itself. It may suffice, for our present purpose, to extract a few notes on some of the more important races or species according as they may be considered. Among them all the earliest known was the Citron. It is not, however, that fruit nor any other *Citrus*, according to Professor Targioni, that we read of in the Bible, under the name of Hadar, as is asserted by some, nor yet is it anywhere alluded to by Homer. The first mention we have of it is in a comedy of Antiphanes, quoted by Atheaneus, in which it is said that the seeds of the Citron had then recently been sent by the King of Persia as a present to the Greeks. Theophrastus is the first who describes it; he tells us that the fruit was not eaten, but solely prized for its odour and as a means of keeping the moths off woollen clothing. Among the Romans we find an allusion to the Citron in Virgil's *Georgics*, but it does not appear to have been then yet introduced into Italy, for Columella, long after Virgil's death, made no mention of it, and Pliny, in his paraphrase, as it were, of the passage of Theophrastus, adds that it had been endeavoured to transport plants of the Citron, which he calls *Malus Medica*, or *Malus Assyria*, into Italy, but without effect, as it would only grow in Media and Persia. Palladius, however, in the fifth century, gives many details of the modes of propagating and cultivating this tree, which, he says, he had carried on with success on his Sardinian and Neapolitan possessions. It was, therefore, in all probability, in the course of the third or fourth centuries that the Citron was introduced and established in Italy. The mass of evidence collected by Professor Targioni seems to show that Oranges were first brought from India into Arabia in the ninth century, that they were unknown in Europe, or at any rate, in Italy, in the eleventh, but were shortly afterwards carried westwards by the Moors. They were in cultivation at Seville towards the end of the twelfth century, and at Palermo in the thirteenth, and probably also in Italy, for it is said that St. Dominic planted an Orange for the convent of S. Sabina, in Rome, in the year 1200. In the course of the same thirteenth century, the Crusaders found Citrons, Oranges and Lemons very abundant in Palestine; and, in the following fourteenth, both Oranges and Lemons

became common in several parts of Italy. It appears, however, that the original importation of Lemons from India into Arabia and Syria occurred about a century later than that of Oranges. The Shaddock is believed to have followed a different route in its migration into Europe. Most abundantly cultivated in, and possibly indigenous to, the south-eastern extremity of the Asiatic continent, it is said to have been carried from thence to the West Indies, and from Jamaica and Barbadoes to England early in the eighteenth century. It was, however, certainly previously known in Italy, for it is described and figured by Ferrari, in 1646, as having been sent from Genoa to the garden of Carlo Cadenas, near Naples. There is no record of its first introduction to Genoa, whether from the East or the West. Innumerable varieties of Citrons are cultivated at Florence, where they have ever been great favourites as objects of curiosity as much as for their flowers and fruits. Among them is a very singular one, called Bizzarria, raised by hybridising and cross-grafting, in which the same tree produces Oranges, Lemons, and Citrons, often on the same branch, and sometimes combined into one fruit, a curious case, analogous to that of the well-known hybrid, by grafting between the *Cytisus laburnum* and *C. purpureus*.—*Journal of the Horticultural Society*.

PROPAGATION OF FANCY PELARGONIUMS.—About the beginning of February is as good a time as any for taking cuttings: select some good tops from the very best sorts that are out; get as many thumb-pots as you will require for the purpose; fill them with rich turfy mould, and put one cutting into each pot; but, previous to filling the pots, let them be well drained with broken charcoal or potsherds; then, with a piece of round stick, make a hole an inch deep, fill it with silver-sand, and then put in the cutting, giving the pot a slight tap on the potting-board to settle the soil; dip a piece of stick into some water, and hold it downwards, in order that three or four drops may fall close to the side of the cutting; this will settle the whole together, and the quantity of water will be quite sufficient for three or four days; after that, add a little more in a similar way, or with a fine-rosed watering-pot, as may be thought needful. When you have finished this part of the work, let all the pots be plunged in a slight bottom-heat, say from 65° to 70°; give a little air in the daytime, to prevent the cuttings from damping off. I do not recommend the practice of putting a great quantity of hard-wooded cuttings into one pot; two out of three will take root, and then you spoil several in getting them apart; strong cuttings, stuck singly in pots as directed, and well managed after they have rooted, will make fine specimens by June or July the following season.—*Gardeners' Chronicle*.

FLORAL

OPERATIONS FOR THE MONTH

IN THE FLOWER GARDEN.

A NEMONES and RANUNCULUS still plant for early spring bloom. A number of the Turban Ranunculuses in patches are very showy. *Tulips*; plant immediately. A bed with raised sides six inches high is usually preferred, and having the surface of the bed a few inches higher in the middle than the sides. Let the bulbs be covered four inches deep. *Hyacinths* for a bed should be planted directly. *Auriculas*, *Polyanthuses*, &c.; allow a free circulation of air between the sides of the pots, raise the frame a few inches, and leave an opening. *Carnations*, &c.; have all air possible, but guard from excess of rain and severe frost. *Dahlias*; take up on a dry day; allow the stem to remain about half a yard long at present; in a fortnight afterwards cut it to six inches or less, if tolerably dry. *Chrysanthemums*; allow all air possible, to prevent them being drawn up weakly. Every other watering at the roots must be with liquid manure. Thin the flower-beds, and, if required for exhibition, only retain one flower to a shoot.

PINK AND PANSY BEDS.—Have small sticks pricked among the shoots or round the beds to prevent the plants being twisted off by the wind. *Mildew* sometimes attacks *Carnations*, *Pinks*, and *Pansies*, and causes the leaves to be spotted; dust the foliage under and over with sulphur. *Hollyhocks*—the sooner planted, the better will they bloom. *Lobelias* of the tall class, in beds, should be taken up and placed in shallow pans or boxes, closely together; give but little water during winter; they may be kept in any cool place free from frost and damp. *Verbenas*; keep near the glass, give all air possible; only preserve from fogs and frost, and examine the underside of the leaves to see if green fly be there; if so, fumigate directly. If *mildew* appears, apply sulphur, only give water to the roots to keep the soil just moist.

DRESS FLOWER-BEDS.—Give an addition of fresh soil and manure, divide and replant perennials, biennials, &c. Let a liberal profusion of spring flowering bulbs and herbaceous perennials, &c., be planted in beds and borders near to the dwelling-house, as *Crocus*, *Aconites*, *Snow-drops*, *Scillas*, *Hyacinths*, early *Tulips*, &c.; and *Hepaticas*, *Double Primroses*, *Polyanthuses*, *Auriculas*, *Wallflowers*, *Brompton Stocks*, &c.; also the little *Arabis grandiflora*, *Draba aizoides*, *Erica carnea*, *Dielytra spectabilis*, *Sedum oppositifolia*, *Turban Ranunculus*, and *Anemones*, &c. They produce a cheerful appearance during the spring months, and are handsome to be viewed from the rooms. If severe frost occurs, protect beds of bulbs. The stock of bedding plants must be looked after, whether in cutting, pots, or otherwise; allow plenty of air on all suitable occasions; don't over-water, rather have them nearly dry during the season of rest.

IN THE GREENHOUSE, &c.

Pelargoniums.—Repot the show class, give plenty of air, not too much water; fumigate if green fly appear. Stop the lead of every shoot of the large plants which are wanted to be in bloom in June, towards end of month, and also of the young plants struck the past summer, to cause them to push side shoots. *Azaleas*, for early bloom, place in higher heat, and keep those cool which are to bloom late. *Calceolarias*, keep in a cool place just from frost; cuttings strike well now. *Tropaeolum tricolorum*, and the other tuberous roots, must now be potted, if to bloom next season. *T. Lobbianum*, *Hockerianum*, &c., encourage; they will bloom through winter. *Salvia splendens*, *fulgens*, and *gesneriflora* encourage—they are fine

for autumn and winter bloom. *Chinese Primroses*, repot. *Chrysanthemums*, keep in airy cool situations. *Oxalis elegans* and others will bloom by due attention. *Neapolitan and Russian Violets* have in abundance in frames. *Isias*, &c., now pot and place in a cool situation, or plant out of doors in a warm place. *Cactus truncatus* will now show for bloom. *Cinerarias* keep in a frame near glass, but preserve from frost. A few may be forced for winter bloom; fumigate with tobacco to save from ravages of the green fly,

FORCING STOVE OR PIT.

Now have a stock of all the winter flowering plants brought in; begin with a temperature of about 55°, and increase gradually up to 75°. In addition to all bulbs, see the list in last month's calendar of winter blooming plants.

SHRUBS AND TREES.—If evergreen shrubs and trees were not planted last month as directed, they should be immediately; the earlier the more successful.

Plant Roses now; it is the best time. Give six inches thick of well-rotted dung to all standard and other roses; take off a portion of soil, lay on the manure, and cover with earth. Prune Roses of any class but the China, Tea and Banksian.

BRIEF REMARKS.

EARLY TULIPS.—In many places these are beautifully in bloom, and for the amateur of limited means they are a valuable tribe of spring-flowering plants, and now being the planting season, I shall be glad to see the following in the November Magazine. They are cheap, and easy to cultivate, requiring but little attention; and while they annually adorn the flower-clump, or sitting-room window, their numbers will increase, until the only difficulty will be to find room for them. During April and May they add an inexpressible charm to the flower-border, and do not withdraw their unequalled colours and sweet perfume until their place can be supplied with the usual bedding-out plants. What, for instance, can be compared with a bed of the Tournesol for the regularity of surface, and the splendour of its two distinct colours? Next in size and beauty is a single variety called Keizar Kroon, which is indeed a noble flower. It has a very bright yellow ground, flaked with a vivid scarlet, and is in every respect "Queen" of the single early Tulips. Rex Rubrorum is a double variety of a brilliant crimson, also very large; a bed of it presents a very regular surface, and long continuance of bloom. Royal Standard is a pleasing flower, with a pure white ground, beautifully flaked with carmine, making a striking contrast. Belle Alliance is another single flower, very attractive, of a vivid red colour, a self. The new scarlet Van Thol is very similar to it, but it has this difference, that it very often breaks into a flaked flower, orange and red. Grand-master of Malta and Bride of Haarlam are very similar in colours, having both pure white grounds, distinctly striped, and flaked with bright crimson. Alida Maria is a flower in the same style, but very dwarf in habit. Superintendent is a fine kind, white, with a violet flake; Conqueror is double and has the same colours. The best double pure white is La Candeur; as single whites, White Swan and Pottebakker are the best. Amongst yellows we have the yellow Van Thol, dwarf and showy, the yellow Pottebakker, and the old double yellow, which is rather later in flowering. From February till May they may be also easily had in flower for the window. In forming a small collection, the following varieties are suitable to begin with:—Van Thol, single and double; Rex Rubrorum, Tournesol, Florentine, and Mariage de ma Fille. The outlay for a dozen of each of these varieties will not exceed the cost of one dozen of first-class Hyacinths; and while the latter have to be bought annually, these will last for years. I would advise one-half the quantity obtained to be planted in autumn, in the flower-border, where they will bloom in

spring, and will be in a fit state for potting for the window next season. The soil in which they are planted should be rather light and rich, and ought to be well loosened to the depth of fifteen inches at least; for although they will grow and flower if stuck into any soil, they will yearly become weaker and fewer in number, until they ultimately disappear altogether. In planting, the roots should be placed about five inches apart, and covered with about two inches of soil. They require no protection, and no further care, except a few stakes to support the taller growing sorts, and to have the surface of the soil stirred occasionally. As soon as the leaves decay, the roots may be taken out of the ground, and placed in a dry place for a time, in order that they may get thoroughly dry before they are put into their winter quarters. Any cool dry place will answer for this purpose; but mice are apt to make sad havoc among them, so keep your eye upon them. I also find it necessary to guard them against the ravages of these vermin in the ground. It is often necessary to remove them as soon as they have done flowering; and in this case I lift carefully, retaining as much soil with their roots as I can, and place them in a shady situation, covering them with soil to about the depth they formerly occupied. If the weather is dry, give them a little water; here they will ripen their growth, and will receive little injury from their removal. These ought to change places with the portion which has flowered in the window, as they will be found apt to become weak under pot-culture; and if the same roots be used two successive seasons, they will probably be of little account the second; this will not, however, be a necessary consequence, but is generally the result of using small pots, and otherwise treating the plants unnaturally. For window decoration, plant in small pots as soon as the bulbs are procured, using 7-inch pots for the purpose; put in each five roots of Van Thol, or three of the other sorts. After potting, they should be placed in some spare corner out of doors, and covered about two inches deep with coal ashes, or any material which can be easily removed. Here they may be allowed to remain till about Christmas, when a portion may be removed to the greenhouse, to forward their blooming season. The Van Thol is the earliest, and ought to be treated as such, except variety is desired; in that case, take *Rex Rubrorum* and *Tournesol*; these will be in flower in February, and, if properly tended with water, &c., will retain their gaiety for at least a month. Of course, provision must be made to keep up a succession of bloom. When done flowering, early Tulips must not be turned out of doors, nor otherwise maltreated; they must be allowed a place in a frame or greenhouse, where they can go gradually to rest. It will not be necessary to give them much water after flowering; but do not allow them to be without it until the leaves show symptoms of decay, then gradually withhold it altogether. Afterwards give them the treatment directed to be given those grown in the flower-border.—*Gardeners' Chronicle*.

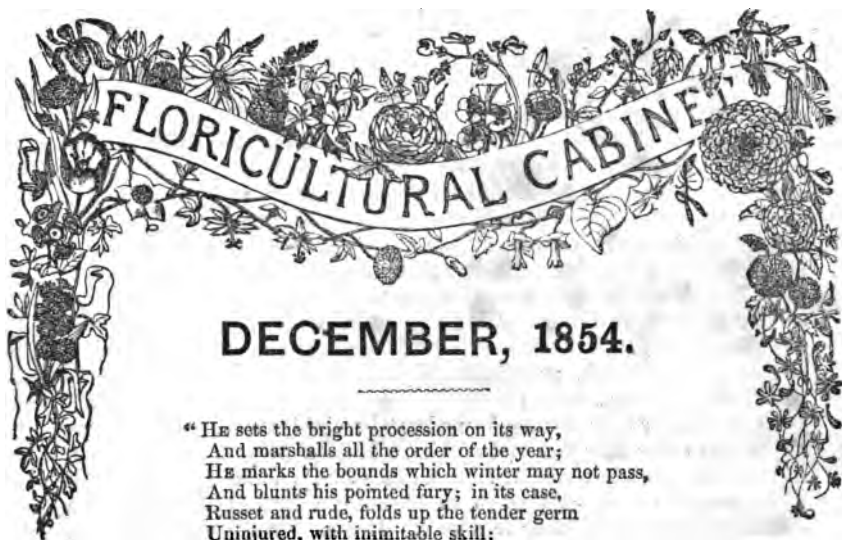
ON MIGNONETTE.—Everybody's favourite, and is easily grown, provided good frame or pit room can be secured for it. Two sowings, the one about the first week in August, and the other three weeks later, will furnish plants for both autumn and spring. They may be sown in a small bed, and, when compact plants, may be transferred to 5-inch pots, putting five or six in each pot. They require much care on their removal, and must be placed in a close and moist atmosphere for a week; in fact, they should receive cutting treatment. They enjoy abundance of light; no soil or plan will flower them in perfection unless they are near the glass. A back shelf in a pit, or a frame made up specially for them with the glass thoroughly washed, and the pots placed on, or rather plunged in, ashes, is the best situation for them.

It is necessary, in order to make the plants thick and stout, to pinch the terminal bud of each off when they are thoroughly rooted in the pots, and not before. Air must be given abundantly at all times possible. They must be well secured against severe frosts by plenty of covering, and kept somewhat dry at the root during the dark months of November and December. The soil may be two parts of turfy loam, and the third equal parts manure and leaf soil, to which is added coarse sand and charcoal siftings.—**CLERICUS**.





Rhododendron Thomsoni.



"He sets the bright procession on its way,
And marshalls all the order of the year;
He marks the bounds which winter may not pass,
And blunts his pointed fury; in its case,
Russet and rude, folds up the tender germ
Uninjured, with inimitable skill;
And 'ere one flow'ry season fades and dies,
Designs the blooming wonders of the next."

ILLUSTRATIONS.

RHODODENDRON THOMPSONII.

This unrivalled species is one of the valuable acquisitions which Dr. Hooker discovered upon the Himalayan Mountains, and subsequently introduced it into England. In its native locality, it is said to grow from eight to fifteen feet high, at an elevation of from 3,300 to 3,900 feet above the level of the sea. Its specific name was given by Dr. Hooker, in compliment to his friend, and companion in his researches in the Himalaya, Dr. Thomas Thompson, Professor in the Glasgow University.

The plant grows freely and blooms profusely. The leaves are of a thick leathery substance, pretty green above, and of a silvery hue beneath. The flowers are produced in terminal, large heads, each having from six to eight blossoms, producing a splendid appearance, highly ornamental and elegant. In our own country, it is stated to grow from two to four feet high, forming a fine bushy plant. It merits a place in every garden, or, grown in a pot or tub, in the shady part of greenhouse, from whence it can be removed to the open air after blooming and being repotted, in order to perfect its growth and properly mature its new wood.

NOTES ON NEW OR RARE PLANTS.

BEFARIA ÆSTUANS.—*The glowing.* (Natural order Ericææ.)—Synonyme *Acunna oblonga*.—A shrubby plant, growing to the height of eight feet in its native country, New Granada. Its foliage and younger shoots are very like those of the *Indian Azaleas*. It is a charming plant for the greenhouse, growing freely, and blooming profusely. The flowers are produced in terminal panicles of eight to ten in each. Each blossom has seven petals, forming a bell-shaped flower, about two inches long, and nearly as much across its mouth; they are of a beautiful rose colour. Mr. Lobb discovered it in the province of Chacapoyas, at an elevation of 8,000 feet, and sent it to Messrs. Veitch. It is a *handsome blooming* bushy shrub, and merits a place in every greenhouse. (Figured in *Bot. Mag.*, 4818.)

CEANOTHUS PAPILLOSUM.—A moderately sized shrub, as hardy as any of the other *blue flowered* species. It is a *profuse bloomer*; the flowers are borne in terminal panicle corymbs, on the side shoots, of a *blue purple* colour, and when in bloom is very handsome. It is a charming plant for training to a wall. It was first discovered by Mr. Douglas, in California, and subsequently by Mr. William Lobb, who sent seeds of it to Messrs. Veitch, in whose nursery, at Exeter, plants have bloomed this year, growing in the open border. (Figured in *Bot. Mag.*, 4815.)

CEREUS LEMAIRII.—Sir W. J. Hooker states, in the *Botanical Magazine*, "two years ago, cuttings of a *flagelliform Cereus*, were sent us from the Royal Botanic Garden of Hanover, bearing the name of "*C. rostratus*, Lemaire." He further observes, that the one now figured does not correspond in structure or flowers with the true *C. rostratus*; he therefore gives it a new name, and dedicates this most superb flowering plant of the Cactææ to M. Lemaire, who has rendered much valuable service in the investigation of this family. It belongs to the *night-blooming* section, the stems being as thick as one's finger, bluntly triangular, and rooting like those of the old *C. grandiflorus*, the well-known *night-blooming Cereus*. The flowers are very large, arising from an angle of the stem, *curving upwards*, twelve inches long, and nine inches across the front of the blossom; the calyx tube about five inches long, and an inch and a half in diameter, clothed with large, long, green and yellow scales, edged with red; within these are the numerous large *white petals*; and the centre of the blossom is *crowded* with numerous *pale yellow stamens*, and a yellow-rayed *stigma* about two inches across. This magnificent flowering plant bloomed in the Royal Gardens at Kew during the last summer. The flowers are powerfully fragrant. Nothing is positively known of its native country; but it happens that I have a drawing made in Antigua of this species, so that it is probably a native of that island. (Figured in *Bot. Mag.*, 4814.)

HYPOXIS LATIFOLIA.—In the spring of 1854 some bulb-like tubers were, along with other rare plants, brought to the Royal Gardens of

Kew, by Captain Garden, from Natal. The tubers in question threw out leaves very like those of some *Orchis*, and from the axils of the leaves the flower-stalks arose, bearing spikes, or rather *racemes*, of rich bright-yellow, six-petalled flowers, each blossom being an inch across, in form like those of the Star of Bethlehem. Each raceme has about a dozen flowers. The flower stems rise about ten inches high, and the spreading leaves become, after blooming is over, about two feet long. (Figured in *Bot. Mag.*, 4817.)

KNIPHOFIA UVARIA. (Synonyme *Tritoma Uvaria*.)—We have several times noticed in this Magazine, the magnificent specimens of this plant growing in the open borders in the Royal Gardens at Kew; the beauty of their numerous *long spikes* of flowers being admired by all visitors, as well as exceedingly ornamental for several months. One of the bushy patches had upwards of thirty spikes of flowers, from three to four feet high, the terminal blooming portion being from eighteen inches to two feet long; each tube-shaped blossom being from three to four inches long, and the *densely-clothed* oval-cylinder shaped spike of some had upwards of five hundred flowers upon it. At their early stage the blossoms are of a bright red, then *tipped* with yellow, and finally *wholly yellow*. It is a native of the Cape of Good Hope. No plant is more hardy or more easily cultivated, and certainly none more worthy a place in *every* garden. (Figured in *Bot. Mag.*, 4816.)

LAGERSTRÆMIA INDICA-VIOLACEA.—The flowers are of a pretty violet colour, which renders it a pretty contrast with the rose and red of other species; worth a place in every greenhouse. In warm situations these handsome flowering plants will endure outdoors without injury, if trained against a good-aspected wall, and bloom beautifully.

DIPTERACANTHUS PANICULATUS.—A neat stove plant, which blooms in such profusion as almost to cover it. The flowers are rather small, funnel shaped, of a fine blue, and produce a charming appearance.

HELIOTROPIMUM MADAME ANNA TURREL.—The cymous head of blossoms is *larger* than of any other *Heliotropium*, of a lively *blue*, far superior to *Voltaireanum*, and are remarkably sweet.

FUCHSIA, MRS. STORY.—Tube and sepals crimson, reflexed. Corolla of fine substance, clear white.

QUEEN VICTORIA.—Tube and sepals bright scarlet crimson, the latter reflexed. Corolla clear white.

F. PRINCE ALBERT (Banks's).—Tube and sepals scarlet crimson, much reflexed. Corolla a rich violet, very handsome.

F. EMPRESS EUGENIE.—Tube and sepals a rosy crimson, shaded with violet inside. Corolla white.

F. LADY OF THE LAKE.—Tube and sepals a deep crimson. Corolla blush-white.

F. WATER NYMPH.—A bright scarlet crimson *globe*. Corolla clear white.

F. DUKE OF WELLINGTON (Stokes's).—Tube and sepals a rich crimson, corolla violet. Fine formed flower.

F. TRANSCENDENT.—A *very large* white flower, with a lilac and purple corolla.

F. STELLA.—A beautiful rose colour, and a very novel flower.

F. CHARMER.—Tube and sepals white, and the corolla a rich *purple*; also a free bloomer.

PELARGONIUM.—CLOTH OF SILVER.—A superb "*Fancy Class*" flower. White, in the way of "*Delicatum*," but much superior; the upper petals have a very large distinct blotch.

P. EVENING STAR.—It is considered to be the best *Fancy Variety* hitherto sent out. The flower is of fine shape, good substance, a deep purple crimson, with a white centre-eye, and a well-defined white margin.

P. CRYSTAL BEAUTY.—A fine-shaped *Fancy* flower, of a rich rosy-crimson colour, and very showy.

P. LADY HUME CAMPBELL (*Fancy*).—The flowers are of a very bright vivid crimson, with a distinct white eye, and a profuse bloomer.

P. BONNIE LASSIE (*Fancy*).—Flower a bright crimson, with a very distinct white centre; very fine.

P. CONSTANCE (*Fancy*).—Upper petals a deep maroon, with a broad margin of pure white; lower petals white, with a rosy-violet spot on each, and fine form.

PELARGONIUMS, of the class now termed *French-spotted*, each petal having a spot or blotch, of a very distinct colour from the ground one. They are in the way of our English *Nonsuch* Pelargonium, most strikingly handsome, and free blooming.

AUGUSTE MEILLEZ.—A handsome salmon-pink, with dark rich maroon spots; very fine.

COLONEL FOISSY.—Beautiful rose, with rich crimson veined spots; fine flower.

ETOILE DE JARDIN.—Pretty rose, with deep crimson spots, of dwarf habit and free bloomer.

GLOIRE DE BELLEVUE.—Flower a deep maroon, edged broadly with pink.

GENERAL EUGENE CAVAIGNAC.—Rose-colour ground, with large deep maroon, veined, blotches; very fine.

GUSTAVE ODIER.—A beautiful rose with crimson spots.

JACQUES DUVAL.—Fine pink, with crimson-maroon blotches; very fine.

JAMES ODIER.—Scarlet and rose, shading with violet, and a pure white centre.

MADAME DE LAMORICIERE.—A pretty peach colour, with deep crimson blotches; very handsome.

SANS-PAREIL.—Pretty rose, with a white centre and crimson spots; beautiful.

TRIOMPHE DE LA TOUR.—Rosy-purple, with rich, dark-veined blotches; very showy.

(Thirty others will be described in our January Magazine.—EDITOR.)

PASSIFLORA SHEPHERDI.—Flowers large, of a lavender-blue, rose and white; a fine plant for the greenhouse, or warm situation out-door; superb.

CYTISUS ONOSPERMUM.—Flowers white, and have a fragrance like that of the lily of the valley. Fine for the greenhouse.

NERIUM SPLENDENS GIGANTEUM.—Flowers very large, *double*, of a bright red colour; superb.

LYSIMACHIA LESCHENAULTII.—The flowers are borne in heads somewhat like those of the verbena, of a rosy-purple colour. It is a profuse bloomer, and continues in flower in the open bed the entire summer; very neat and pretty.

ACHIMENES GIGANTEA.—The plant grows from two to three feet high, pyramidal shaped, and is a profuse bloomer. The flowers are *large*, orange and scarlet, very fine, and blooms all the summer.

ACHIMENES RETICULATA.—The flowers are netted beautifully, producing a very interesting appearance.

BEGONIA OPULIFLORA.—Snowball-like flowered, the pure white blossoms being borne in similar heads to those of our common snowball shrub.

GLOXINIA SPLENDIDA.—The flowers are erect, like those of *Tyafina*, of a rich crimson colour.

NOTES FROM KEW, BY MR. W. S. PRESTOE.

GRIFFINIA HYACINTHINA. (*N.O. Amaryllidaceæ.*)—Flowers in heads like the *Agapanthus Umbellatus*; the ground colour of the flower is a very light blue, the bottom petals margined with a deeper blue, the top petals margined with a very deep blue, and the flower stalks raised about fifteen inches high, of a bright green tinted with a purplish-crimson. This is one of the best stove bulbs we possess, and ought to be in every collection.

JASMINUM SAMBAC-MAJOR. (*N. O. Jasminaceæ.*)—Flowers in trusses from three to six in a truss, whitish, tinted with pink while young, but when old of a faded dull pink; they are very sweet-scented. It is a climbing plant, and merits a place in every stove.

CALCEOLARIA ERICOIDES.—It is a shrubby plant with heath-like foliage thickly set upon the stem, and flowers very freely all up the stem, forming quite a spike of bright-yellow flowers. I think this will make a nice plant for bedding out, as it flowers so very freely, and remains in perfection so long; also for the greenhouse for autumn display. A fine plant in the Royal Gardens has been in *perfection* from the beginning of July to the present time (Nov. 13). It is in a five-inch pot, grows very compact and bushy, and is about fifteen inches high.

BANKSIA ELATIOR.—Leaves lanceolate-serrate, and shining. Flowers in long cylindrical heads, of a greenish colour. It forms quite a tree, and is very showy for a large conservatory.

BANKSIA SERRATA.—Is very similar to the last described, but the flowers are much larger, and of a *darker green*.

B. BANERI.—Leaves cuneate-serrate, slightly covered with hairs. Flowers pyramidal shaped, *very large*, of a dull pink colour; it is, however a very showy one.

B. LITTORALIS.—Leaves lanceolate-serrate, very dark green on the upper side, and the under side whitish. Flowers in a very cylindrical head, of a very bright yellow. It ought to be in every collection, being one of the most showy.

SIPHOCAMPYLUS COCCINEUS. (*N. O. Labeliacæ.*)—Leaves oblong-serrate, alternate. Flowers of a bright red. It is a very showy stove plant, of easy culture. Flowers very freely at this time of the year, and merits a place in every stove.

MELASTOMA CYMOSA.—Leaves ovate-serrate, opposite, of a very bright green colour. Flowers in a large but not very compact panicle, of a bright pink colour. It is a very showy stove plant, flowers very freely from August to November. It merits a place in every stove, and flourishes in a rich loam with plenty of drainage.

CRYTANTHERA POHLIANA. (*N. O. Acanthaceæ.*)—Leaves ovate opposite, of a very dark green colour. The wood while young of a dull purple. Flowers are borne in a spike of a very bright pink, nearly a red. It is a most beautiful plant, as it blooms so very freely while young. There are at present some plants in the Royal Gardens, at Kew, each about fifteen inches high, with four large spikes of beautiful flowers. It is easy of cultivation, and ought to be in every collection.

BEGONIA PLATANIFOLIA.—Leaves palmate, very large, of a shining green. Flowers of a pure white, borne in a very large *truss*, many of the blossoms are one and a quarter inch across. It ought to be in every collection of begonias. It requires a good space, as it grows very large, and is in proportion ornamental.

LAPAGERIA ROSEA. (*N. O. Smilacææ.*)—This very charming plant has been in flower in the cold fern-house, in a shady situation, trained to the back wall, where its *bright rosy-red* coloured flowers are most beautiful. It ought to be in every greenhouse, being a free growing and free flowering plant.

CHOROZEMA FLAVA.—Flowers bright yellow; very pretty.

C. ELEGANS.—The upper part of the flower is a bright red, the keel of a rich crimson.

IXORA BARBATA.—Flowers white, which are very fragrant.

CHEIRANTHIUS MUTABILIS.—This shrubby specimen has been in flower in the greenhouse all the summer, and is really a nice plant, its varied coloured flowers of rose, lilac and white, in spikes like a single stock are very pretty and ornamental.

FRANCISCEA EXIMEA.—This is a charming plant too, each blossom one and a half inch across, of pale-sulphur, with a rose-coloured centre, fragrant too.

APHELANDRA PORTEANA is a charming plant also; there are some now about eighteen inches high, with fine spikes of orange coloured flowers.

OBLIGATIONS OF ENGLISH POETRY TO THE SCRIPTURES, AS CONNECTED WITH THE VEGETABLE WORLD.

BY MR. PETER MACKENZIE, WEST PLEAN, STIRLING.

SIR,—In the course of my reading, I have seen an article pointing out the obligations of English poetry to the Scriptures : a few extracts from it, connected with the vegetable world, may be instructive to many of your numerous readers. We are told, by those who have studied the subject, that the influence of the Scriptures in moulding and colouring our poetical literature is not confined to the works of the religious poets, but may be traced in every department, and during all the stages of English poetry. Our poets, it is true, have not as a body been addicted to the study of the Bible, nor can the praise be awarded them of having transfused into their writings the moral spirit and genius of Holy Writ. On the contrary, their models have generally been the classical rather than the sacred writers ; and their moral sentiments, as well as their theories of happiness, betray a livelier sympathy with Paganism than Christianity. Still, living in a country where the popular mind has long been penetrated and imbued with Scriptural truths, they have been led insensibly to enrich their compositions with a multitude of poetical ideas derived from “ the images and scenery of the kingdom of Christ.” It is the great and enduring effect of a book cast in the high mould of the Bible, to stir the souls of many beyond the immediate circle of its readers—nay, to shape the public sentiment and elevate the general intellect.

The following extract from Shakspeare’s Henry VIII. may be better applied to our beloved Queen than to any Queen that ever reigned :

“ She shall be loved and fear’d ; her own shall bless her,
Her foes shake like a field of beaten corn,
And hang their heads with sorrow. Good grows with her ;
In her days every man shall eat in safety
Under his own vine what he plants, and sing
The merry songs of peace to all his neighbours.
God shall be truly known ; and those about her,
From her, shall read the perfect ways of honour,
And by those claim their greatness, not by blast.”

The prophet Nahum speaks of figs being so ripe as to fall into the mouth of the eater. Spenser has not overlooked this happy thought :

“ Arch’d overhead with an embracing vine,
Whose branches hanging down seemed to invite.
All persons by to taste their luscious wine,
And did themselves into their hands incline
As freely offering to be gathered.”

Still more marked is the following imitation, or rather transcript, of the beautiful language in which our Lord rebukes worldly anxiety :

* Behold, O man, that toilsome pains dost take,
 The flowers, the fields, and all that pleasant grows ;
 How they themselves do thine example make,
 Whilea, nothing envious, nature them forth throws
 Out of her fruitful lap. How no man knows,
 They spring, they bud, they blossom fresh and fair,
 And deck the world with their rich pompous shades ;
 Yet no man for them taketh pains or care,
 Yet no man to them can his careful pains compare :

The lily, lady of the flowering field,
 The flower-de-luce, her lovely paramour,
 Bid thee to them thy fruitless labours yield,
 And soon leave off this toilsome weary stour :
 Lo, lo ; how brave she decks her bounteous bower
 With silken curtains and gold coverlets,
 Therein to shroud her sumptuous bellamour :
 Yet neither spins nor cards, nor cares nor frets,
 But to her mother Nature all her care she lets."

"There is hope of a tree, if it be cut down, that it will sprout again, and that the tender branch thereof will not cease, though the root thereof wax old in the earth, and the stock thereof die in the ground ; yet through the scent of water it will bud, and bring forth boughs like a plant. But man dieth and wasteth away : yea, man giveth up the ghost, and where is he ?"—*Job* xiv. 7, 8, 9.

"But when I stood beneath the fresh green tree,
 Which living waves where thou didst cease to live,
 And saw around me the wide field revive
 With fruits and fertile promise, and the Spring
 Come forth, her work of gladness to contrive,
 With all her reckless birds upon the wing,
 I turned from all she brought to those she could not bring."
 BYRON.

"To mute and to material things
 New life revolving Summer brings ;
 The genial call dead Nature hears,
 And in her glory reappears :
 But, O ! my country's wintry state,
 What second Spring shall renovate ?
 What powerful call shall bid arise
 The buried warlike and the wise—
 The mind that thought for Britain's weal,
 The hand that grasped the victor's steel ?
 The vernal sun new life bestows
 Even on the meanest flower that blows ;
 But vainly, vainly may he shine,
 Where glory weeps o'er Nelson's shrine ;
 And vainly pierce the solemn gloom
 That shrouds, O Pitt, thy hallow'd tomb."—SCOTT.

"Consider the lilies of the field, how they grow ; they toil not, neither do they spin ; and yet I say unto you, that even Solomon, in all his glory was not arrayed like one of them. . . . Behold the fowls of the air, for they sow not, neither do they reap, nor gather into barns ; yet

your Heavenly Father feedeth them. Are ye not much better than they?"

"Behold, ye pilgrims of the earth, behold!
 See all but man with unearn'd pleasure gay;
 See her bright robes the butterfly unfold,
 Broke from her wintry tomb in prime of May.
 What youthful bride can equal her array?
 Who can with her for easy pleasure vie?
 From mead to mead with gentle wing to stray,
 From flower to flower on balmy gales to fly,
 Is all she has to do beneath the radiant sky.
 Behold the merry minstrels of the morn,
 The swarming songsters of the careless grove,
 Ten thousand throats; that from the flowering throne
 Hymn their great God, and carol sweet of love,
 Such grateful kindly raptures them emove;
 They neither plough nor sow; no, fit for flail,
 E'en to the barn the nodding sheaves they drove:
 Yet theirs each harvest dancing in the gale,
 Whatever crowns the hill, or smiles along the vale."

THOMSON.

We are told that, of all classes of men, poets are, from their peculiar temperament, the most susceptible of this assimilating influence; it is only what might be expected, that their works, though repudiating the spiritualism of the Bible, should reflect many of its literary beauties; while to others, as Bishop Horne remarks, the finest productions of human art, after a few perusals, like gathered flowers, wither in our hands, and lose their fragrancy; but these unfading plants of Paradise become, as we are accustomed to them, still more and more beautiful; their bloom appears to be daily heightened, fresh odours are emitted, and new sweets are extracted from them: he who hath once tasted their excellences, will desire to taste them yet again; and he who tastes them oftenest, will relish them best.

REMARKS ON THE CAPE PELARGONIUMS.

BY MR. WILLIAM SMITH, HOPETOWN HOUSE, NORTH BRITAIN.

THE tuberous-rooted Pelargoniums are much less generally cultivated now than formerly, their flowers bearing no comparison to those of the half shrubby kinds. Such may, however, be readily increased by planting pieces of the roots in small pots, in a slight heat; leaving a small portion of the root above ground.

During the growing season, they require water very freely; but as soon as they have *done flowering*, and their leaves begin to turn yellow, decrease the quantity of water gradually. The best method to do this, will be to water once in three days, then once a week, then once a fortnight, and lastly, once a month; by which time they will be com-

pletely at rest, when no water must be given them until they begin to grow again, which may be looked for about February or March. When at rest, any situation where they can be kept moderately dry and cool, will do for them; heat, light, and moisture being unnecessary.

The best time to increase this section of Pelargoniums, is just before they begin to grow. Take off a small tuber or two, where they can be spared, from each plant, and put them into as small pots as they can be placed, just to cover them; place them in gentle heat, giving them but little water till they begin to grow, when they may be removed amongst the established plants, and the ordinary culture given; they may also be increased by seed, which, however, they do not produce so freely as the shrubby species.

In regard to the species that have not been hybridized, of which *P. bicolor*, *tricolor*, *ovatum*, *tetragonum*, *elatum*, *pendulum*, *fulgidum*, *elegans*, &c., form a part, the above authority directs as follows:—"As they are all shrubby species, they require watering all the year, though always carefully; for if the soil gets soddened with water for any length of time, it is in general fatal to the plants. They also require greenhouse treatment during winter and spring. In summer they should be placed out of doors in an open situation, screened from high winds, and set upon a bed of ashes so thick, as to prevent worms from getting into the pot; keep them clear of weeds, tied up neatly, and regularly watered during dry weather. Pot them into larger pots when they require it, the best operation for which is the month of April.

To propagate them, take youngish cuttings off about the month of May; fit some bell or small hand-glasses to such a number of pots as may be required; fill them half full with broken potsherds, rough bits of turf, or any thing that will permit the water to pass freely off; pot in upon them as much compost (loam, peat earth, vegetable soil, and sand, in equal proportions, which is found to be the most proper for them) as will fill up to the top with pure sand, then give it a gentle watering, and insert the cuttings, giving more water to settle the sand close and firm to them. When pretty dry, cover them with the glasses, and place them in a gentle heat; pot them off, when struck, and keep them close and warm till they have struck root again; then give them the ordinary treatment as to situation, air, watering, potting, and so forth."

Propagation of this section by seeds is seldom practised; but some recently raised have proved exquisitely beautiful, and it is well worth any attention in a careful impregnation to obtain further improved varieties. Geranium seeds are best sown soon after they are ripe, provided that does not happen after August, in which case it would be better to delay sowing until February or March. When the seeds are sown, they should be placed in a mild hot-bed, and regularly shaded till they have vegetated, after which they should have been accustomed to the sun and air to harden them previous to their being potted, which should be done when they are about an inch and a half high; their treatment after this differs from that of cuttings, only that they

need not be topped with a view to form bushy plants, as it is not until they bloom that their merits can be ascertained. The young seedlings should be stimulated by growing them in richer soil, and occasionally giving liquid manure.

MANAGEMENT OF THE IRIS BICOLOR.

BY ELLEN PRICE, AN ARDENT PLANT CULTIVATOR.

BEING anxious to assist in spreading information, and observing that recently some notice has been made of Spanish and Persian Irises, I am induced to trouble you with a few remarks on the culture of the Iris bicolor. I have been repeatedly asked how I manage my plants; even during the last spring, three eminent floral amateurs have inquired concerning the treatment of this and other similar plants, and it now being the season of planting bulbs, I hope this communication will be in time for the October magazine. Not having time to answer every separate question of this sort, I take this opportunity of stating how your readers may certainly succeed as respects this singular and beautiful species of Iris (*Hermodactylus*), introduced to our gardens so long ago as the year 1597. I do this the more readily, because its great beauty entitles it to a place in *every garden where a choice collection of plants is kept*; and besides, it forms a necessary link in the large and beautiful family of Iridææ. But first, as to the identity of the species; and on this point it may be remarked, that in "Sweet's British Flower Garden," vol. v. page 146, there is the figure of a species of snake's head; yet that is not the plant in question. On the contrary, I believe the Iris bicolor to be identical with the Iris tuberosa, in the *Bot. Mag.*, page 531, though the figure of it there given is very poor. I got the plant from Pontefract eleven years ago, and this is the fifth intervening season it has bloomed under my care. I have about one hundred roots, and forty of them are now blooming. The soil consists of two parts of turfy peat, one of white sand, and one of completely rotten stable manure, all rubbed well together. It is not sifted, but a little of the finest is placed about the tubers when planted. They should be planted six inches deep, and there should be placed below the tubers a compost to the depth of at least nine inches. The plant is hardy, and should be placed in an open situation; it will require no protection except when in bloom, the flowers being often destroyed by spring frosts. I had twenty blossoms completely cut off in the year 1852. The best, and indeed the only time to remove the roots with safety, is when they are in a state of rest. The foliage will be lying down from about the end of May to the middle of June, when they should be taken up and kept in sand, in a moderately dry place, for about a month, and afterwards planted in compost, as above mentioned. If the plants be in pots, they may of course be removed any time; but I have found that the species cannot be kept in health long together in pots. Care should be taken not to

break off the digitals of the root, in taking up and planting ; for if that happen, the root will certainly not bloom. Something of this sort occurs when the roots are left undisturbed the whole summer ; for, being fleshy, the worms and various insects are attracted to them, which gnaw and separate the digitals, if they do not destroy the roots. But there would be no chance of the plant living for a long time in a cool adhesive soil, where worms, &c., would not be likely to abound.

THE MIMULUS.

BY AN ARDENT ADMIRER AND CULTIVATOR AT SCARBOROUGH.

THINKING that an article on this justly admired genus of plants would be acceptable for insertion in your Cabinet, I send you a few remarks on the origin and culture of the Mimulus, as being a flower worthy of much more attention than it now obtains, though I am glad to state it is rapidly extending ; and during the last two years about a dozen most strikingly superb varieties have been raised, the beauty of which, when well grown, is not exceeded by any other flower that I am acquainted with. Single plants I have grown of the dwarf spreading section, two and a half feet high and two in diameter, and elegantly clothed with a profusion of bloom.

Origin.—The Mimulus, or Monkey Plant, is a native of North America. The first species was introduced into England in 1759, and from that time cultivated with great care, until lately, when other superior kinds have taken the precedence.

Culture.—Although it may be thought by some that any hints on the culture of this plant are superfluous, yet I must say that, to bring it to its best state, many things must be attended to which are generally overlooked. As the Mimulus is seen to the greatest advantage when treated as a greenhouse plant, I shall confine myself to this method of cultivation. Soil with this, as with every other kind of flower, is the first thing to be considered ; for, if this be unsuited to the nature of the plant, all labour in every other respect must be unfruitful. The mixture which I have found best adapted is composed as follows :—To one peck of fresh loam I add one peck of leaf mould, well rotted, and half a peck of cows' dung, two years old. These ingredients are well mixed together, and frequently turned over, sprinkling them with lime water, so that no insects remain in the soil ; for, if even they do not entirely destroy the plants, yet they materially impoverish the compost, by their feeding on many particles which would otherwise have sustained the flower. Drainage of the pots is a requisite which I certainly think ought in the second place to be looked after. This precaution to take away all superfluous water seems not to be generally appreciated ; for how many plants do we see in various quarters without any drainage, except one potsherd to fill up the hole at the bottom of each pot, just as if it would have done quite as well had there been no aperture at all. Now, although this is a common practice, yet I can safely say that no plant can live in perfect health without a proper

portion of drainage; and in this respect I must agree with Mr. Forsyth, when he asserts that plants would grow much more luxuriantly if the pots were made with a small rim under them, to allow more drainage; but I must certainly disagree with him in his recommendations of glazed pots, as I myself have tried them, and have found, as I expected, that if used for a time, all my plants must inevitably perish. But, to return to the subject: after having attended to drainage, about the middle of March I take off a quantity of cuttings, which soon make good roots, after which I plant them separately, in small pots at first, and move them gradually into *large ones* until May, when they generally begin to show buds, and about June they are in most beautiful flower. All the blooming season, I roll canvas over the greenhouse, so as to keep off the intense rays of the sun, which take away the colours and dry the soil, so as to make the flowers small; for the *Mimulus* delights in a *damp earth*, yet cannot be seen in perfection when *over-watered*. Placing water in saucers, under the pots, I know to be a common practice, yet it is founded on a gross error; for if we inquire why water is placed under them, we are told, "The *Mimulus* thrives on the banks of rivers; therefore, it is natural for it to have water constantly by it." This is true; yet we are not to consider that the *Mimulus*, in a pot, has not the same freedom of air and soil as it has on the banks of streams; for in the latter position the *water runs away* after the plant has satisfied itself, but in a pot it stays long after all nourishment is gone, and poisons the soil, and both together eventually destroy the plant. The only method to keep the *Mimulus* healthy, with regard to water, is to keep it in as *shaded a position as possible*, and to supply water moderately whenever it is *required*, yet always to allow the superfluous moisture to drain away.

Raising New Varieties.—When the plants are all in bloom, select the best coloured ones, and cross them upon the largest, and *vice versa*; for the two principal features in a good *Mimulus* are colour and size. If the operation be properly performed, the pods of seeds will begin to swell in a few days, and soon after they will turn brown, and be ready for gathering. After sufficient good seed is collected, it should be sown in pots or boxes, sprinkling it on the surface of the soil; for if covered, *the seeds will decay and never vegetate*. When the young plants have acquired two or three sets of leaves, they should be transplanted into larger boxes, where they will bloom, or, if it be summer, into the open ground, where they make the most healthy plants. When in bloom, the best may be selected, and increased by cuttings, which easily strike. The principal properties, as I have said before, are size and colour, with the two lips forming a good circle. The plants raised from these cuttings should be preserved during winter in a *cold frame*, as they are more tender than the varieties of old standing. When the following spring arrives, they must be treated as directed above for old varieties; and if these new ones be crossed by each other, and so continued for a few seasons, in a little time as fine a progeny will arise as can possibly be expected. I have flowers with *white grounds* marked

and marbled with crimson, purple, scarlet, rose, black, yellow, orange, blue, and pink. I have *yellow grounds* marked and marbled with black, rose, scarlet, white, purple, crimson, violet, and green. To be duly estimated, they must be viewed; they surpass what I can describe.

BOTANICAL SUPERSTITIONS AND DELUSIONS.

BY J. B. DONOVAN, ESQ.

Concluded from page 269.

THE rare but occasional occurrence of vegetation in certain trees and shrubs, happening to take place about the period of our Saviour's birth, induced the superstitious peasant to believe that such trees threw out their leaves with a holy joy, to commemorate that anniversary; as, in like manner, oxen and stags were supposed, and *had been seen*, to kneel down at midnight on Christmas Eve, in humble adoration. Shakespeare has beautifully described this tradition, when the Ghost in Hamlet disappears at the crowing of the cock:—

“ It faded on the crowing of the cock.
Some say, that ever 'gainst that season comes
Wherein our Saviour's birth is celebrated,
The bird of dawning singeth all night long:
And then, they say, no spirit dares stir abroad:
The nights are wholesome; there no planets strike,
No fairy takes; no witch hath power to charm;
So hallowed, and so gracious is the time.”

An oak of the early-budding species has, for two centuries, enjoyed a fame for pious gratitude; for it was considered a matter of fact with many, that it shot forth its leaves on every Old Christmas-day, and that no leaf was to be seen before, or even after that day, during winter. A lady, in 1786, curious to prove the truth of this assertion, proceeded to Cadenham, in the New Forest, where the oak grew. On the 3rd of January, the usual guide was ready to attend her; and on being desired to climb the oak, and search whether there were any leaves, he said, it would be to no purpose, but if she came on the Wednesday following, she might see a thousand. He was prevailed on, however, to climb up, and, on the first branch he reached, there appeared several new leaves, fresh sprouted from the buds, nearly half an inch long. The guide was more astonished than the lady at this premature production; for so strong was his belief in the truth of the whole tradition, that he would have pledged his life, that not a single leaf was to be seen before the usual hour; but no leaves were to be found *afterwards*, because it was stripped by the numerous parties that were accustomed to visit it on Old Christmas-day. It is a curious fact in botany, that such a budding should take place about that season in this, as well as some other trees.

There appears to be another early-sprouting oak, near the spot where

Rufus's monument stands. This seems to authenticate the account Camden gives of the scene of that prince's death; for he speaks of the premature vegetation of the very tree on which the arrow of Tyrrel first glanced, and the present tree may be a descendant of that one.

On Christmas Eve, 1753, a vast concourse of people attended the noted thorn at Glastonbury, which was thought to have similar impulses with the New Forest oak; but, to their great disappointment, there was no appearance of its blowing, which made them watch it narrowly on the 5th of January, Old Christmas-day, when it blew as usual. This famous Glastonbury hawthorn was said to be sprung from the staff of Joseph of Arimathea, who having fixed it in the ground with his own hand on Christmas-day, the staff took root immediately, put forth leaves, and the next day was covered with milk-white blossoms, and that it continued to bloom every Christmas-day during a series of years.

Besides the Holy Thorn, there was likewise at Glastonbury, another miraculous tree. This was a walnut tree; which was said never to shoot forth its leaves before the 11th of June, the feast of St. Barnabas. It has long ceased to exist; but while it was standing, it was held in high respect by the credulous.

At Quainton, in Bucks, also, above two thousand persons on one occasion went with lanterns and candles, to view a blackthorn in that neighbourhood, which was remembered to be a slip from that of Glastonbury.

Mr. Gilpin relates a curious story of the groaning tree at Badesly: "About the middle of the last century," says he, "a cottager, who lived in the middle of the village of Badesly, two miles from Lymington, frequently heard a strange noise behind his house, like a person in extreme agony. Soon after, it caught the attention of his wife, a timorous woman; by degrees the neighbours heard it, and it was noised abroad through all the country. It was then plainly discovered to proceed from an elm, which grew at the end of the garden; it was young and vigorous, and to all appearances perfectly sound. All persons flocked to hear it, and it attracted the notice of the Prince and Princess of Wales, who then resided at Pilewell, the seat of Sir J. Worsley, for the advantage of sea bathing. Many causes were assigned, but none appeared equal to the explanation of it. For about twenty months it was an object of astonishment; and a pamphlet was drawn up, descriptive of it.

It was made also the groundwork of a political squib, reflecting on the ministry of that time, in which it was said, the tree had been heard to groan articulately, "O Walp—O Walp—it is thou makest not only me, but the whole nation to groan." The owner of the tree at last, making too rash an experiment, to discover the cause of its sufferings, bored a hole in the trunk; after this operation it ceased to groan; it was then rooted up, but nothing appeared to account for it, and it was generally believed that there was no trick in it, but that it was the result of natural causes.

A groaning board was exhibited to the public in 1682; the advertise-

nent respecting it ran thus :—" At the sign of the Woolsack, in Newgate Market, is to be seen a strange and wonderful thing, which is, an elm board; being touched with a hot iron, it does express itself as if it were a man dying, with groans and trembling, to the great admiration of all hearers. It hath been presented before the King and his nobles, and hath given great satisfaction."

The hazel has been much celebrated for its powers of discernment, a twig of which formed the divining rod for the discovery of mines. An old author on divination describes it as "a strange kind of exploration, and peculiar way of rhabdomancy, used in mineral discoveries. The method of proceeding is, to take a forked hazel, commonly called Moses his rod, which, freely held forth, will stir and play if any mine be under it; and though many have attempted to make it good, yet, until better information, we are of opinion with Agricola, that in itself it is a fruitless exploration, strongly scenting of pagan divination."

It was used also to discover any hidden spring of water; and, though one may seem as incredible as the other, there have not been wanting persons who have lately given evidence in favour of this property, and of that respectability, as at least to suspend a judgment upon so extraordinary a phenomenon. In the twenty-second volume of the "Quarterly Review," will be found the following well authenticated history :—" It is just fifty years since Lady N.'s attention was first called to this subject; she was then sixteen years old, and was on a visit, with her family, at a chateau in Provence, the owner of which wanted to find a spring to supply his house, and for that purpose had sent for a peasant, who could do so with a twig. The English party ridiculed the idea, but still agreed to accompany the man, who, after walking some way, pronounced that he had arrived at the object of his search, and they accordingly dug and found him correct. He was quite an uneducated man, and could give no account of the faculty in him, or of the means which he employed; but many others, he said, could do the same. The English party now tried for themselves, but all in vain, till it came to the turn of Lady N., when, to her amazement and alarm, she found that the same faculty was in her as in the peasant, and on her return to England, she often exerted it, though in studious concealment; she was afraid lest she should be ridiculed, or get the name of a witch: in either case, she thought she should never get a husband.

"Of late years, her scruples began to wear away. When, in 1803, Dr. Hatton published 'Ozanon's Mathematical Recreations,' where the effect of the divining rod is treated as absurd, she wrote a long letter, signing X.Y.Z., stating the facts which she knew. At Dr. Hutton's particular request, she went to see him at Woolwich, and she then showed him the experiment, and discovered a spring in a field which he had lately bought near the new college, then building, which field he afterwards sold to the college for a larger sum, in consequence of the spring. Lady N. afterwards showed the experiment to others in the park at W. She took a thin forked hazel twig, about sixteen inches long, and held it by the end, the joint pointing downwards;

when she came to a place where water was under the ground, the twig immediately bent, and the motion was more or less rapid as she approached or withdrew from the spring; when just over it, the twig turned so quick as to snap, breaking near her fingers, which, by pressing it, were indented, heated, and almost blistered. A degree of agitation was also visible in her face.

"When she first made the experiment, she says, this agitation was great, but has gradually decreased. She repeated the trial in different parts of the park, and her indications were always correct.

"It is extraordinary that no effect is produced at a well or ditch, or where earth does not interpose between the twig and the water. The exercise of the faculty is independent of volition."

The reviewer concludes by saying, "So far our narrator, in whom, we repeat, implicit confidence may be placed."

It would be an endless task to attempt to give an account of the various superstitions which are attached to trees and plants. A glance at a few may suffice to give an idea of the whole. In some parts it is firmly believed that weak, rickety, or ruptured children may be cured by drawing them through a split tree, if the tree be afterwards so bound as to reunite; in other parts, a remedy for the whooping-cough is found in passing a child thrice, before breakfast, under a blackberry-bush, of which both ends grow in the soil. Onions were formerly, and perhaps are now, used, by rustic girls to divine the name of the man whom they are to marry. Various names were formed upon onions, which were then placed in the chimney corner, and the onion which sprouted first, bore the sought-for name. The plant mouse-ear, given in any manner to horses, was believed to prevent them from being hurt in shoeing; mug-wort put into man's shoes, kept him from being weary on a long journey; moon-ear would open locks and bolts, and undo the shackles and shoes from horses' feet—a quality which must have rendered it very valuable to burglars and horse-stealers; and houseleek would shield from lightening any house on which it grew; this privilege of being thunder proof, it shared with the classical bay tree. The mountain ash, rowan tree, or, as it is called in the northern counties, the wigger tree, was of sovereign virtue as a preservative against the machinations of witchcraft. Similar follies are to be observed in all countries. Here is a specimen from the East:—"There is a tree in India, called Peridexion, whose fruit is sweet and useful, so that doves also delight to tarry in it; and the serpent fears this tree, so that he avoids the shadow of it; for if the shadow of the tree go towards the east, the serpent flies towards the west; and if the shadow of the tree reach toward the west, the serpent flies toward the east; and the serpent cannot hurt the doves, the cause of the virtue of the tree; but if any of them straggle from the tree, the serpent, by its breath, attracts it and devours it. Yet when they fly, or go together, neither the serpent or the sparrowhawk can or dares hurt them. Therefore, the leaves or bark of the tree, suffumigated, avert all evil—that is, of venomous beasts." This, though a fiction, is at least a poetical one.

The decay of the bay-tree was formerly considered by the superstitious as an omen of disaster. It is said that, before the death of Nero, though in a very mild winter, all these trees withered to the root (yet surely his death was no very serious disaster), and that a great pestilence in Padua was preceded by the same phenomenon.

The laurel had so great a reputation for clearing the air and resisting contagion, that, during a raging pestilence, Claudius was advised by his physicians to remove his court to Laurentium on that account. It was also supposed to resist lightning, of which Tiberius was very fearful; and it is said, that, to avoid it, he would creep under his bed, and shade his head with the boughs.

In Lower Saxony the peasant girls, on the eve of St. John, hang sprigs of the hypericum, St. John's-wort, against their bed's head or the walls of their chamber. If it remains fresh on the following morning, they are persuaded they will be married within a year; but if, on the contrary, it droops and fades, they have no hope of marriage within that time.

The black hellebore was used by the ancients to purify their houses, and to hallow their dwellings; and they had a belief that, by strewing or perfuming their apartments with this plant, they drove away evil spirits. This ceremony was performed with great devotion, and accompanied with the singing of solemn hymns. In the same manner, they blessed their cattle with the hellebore, to keep them free from the spells of the wicked.

"What magic has bewitched the woolly dams,
And what ill eyes beheld the tender lambs?"

For these purposes, it was dug up with many religious ceremonies, as that of first drawing a circle round the plant with a sword, and then, turning to the east, an humble prayer was made by the devotee to Apollo and Æsculapius for leave to dig up the root; and the flight of the eagle was particularly attended to during the ceremony; for when this bird approached near the spot, during the celebration of the rites, it was considered so ominous as to predict the certain death of the person who took up the plant, in the course of the year. In digging up the roots of some species of hellebore, it was thought necessary to eat garlic previously, to counteract the poisonous effluvia of the plant; yet we find that the root was afterwards dried and pounded to dust, and sniffed up the nostrils in the manner of snuff; as it is related that when Carneades the Cyrenaic philosopher, undertook to answer the books of Zeno, he sharpened his wits and quickened his spirit by purging his head with powdered hellebore.

Formerly, the Gauls never went to the chase without rubbing the points of their arrows with this herb, believing that it rendered all the game killed with them the more tender.

The verbena or vervain was thought good against venomous bites, and was suspended round the neck as an amulet; it was also recommended as a sovereign medicine for various diseases. In Britain it has

fallen into disuse, in spite of a pamphlet written expressly to recommend it, directing the root to be tied with a yard of white satin ribbon round the neck, and to remain there till the patient recovered. It was formerly the custom to plant asphodel and mallow around the tombs of the deceased. St. Pierre, after dwelling with some earnestness on the property of such customs, quotes the following inscription, engraven on an ancient tomb :—

“ Au-dehors je suis entouré de mauve et d’asphodèle, et au-dedans je ne suis qu’un cadavre.”

The fine flowers of the asphodel produce grains, which, according to belief of the ancients, afforded nourishment to the dead. Homer tells us, that having crossed the Styx, the shades passed over a long plain of asphodel. A poet of the present day informs us, upon grave authority, that the spirits of the martyrs lodged in the crops of green birds have their dwelling

“ In Eden’s radiant fields of asphodel.”

REMARKS ON THE PAPAVER NUDICAULE AURANTIA.

BY MR. JOHN STREET, OF BIEL, BY PRESTON KIRK, EAST LOTHIAN, N. B.

In your July number, I notice the figure of *Papaver nudicaule aurantia*, from which circumstance I am induced to send the following facts for insertion in an early number. *Papaver nudicaule* has continued to grow, flower and ripen its seed here for more than thirty years, sows itself as plentifully as the corn poppy, and sports in several varieties, pure white and shades, sulphur or straw colour. *P. aurantia* semidouble, major, minor and yellow; and this year, complete full double, flowers full up in the centre, and I have kept a specimen as witness. Also some plants produced flower petals, parts white and parts yellow (party colours). If it had been convenient to preserve the thousands of self-sown plants here, other beautifully distinct varieties would most likely have been produced. In fact, it is biennial here.

The *P. orientale* and *bracteata* I cultivate near together: they both ripen seeds, and from these seeds I obtained a distinct variety, which seems to be akin to both. The late Curator Botanical, Edinburgh, remarked it as the best he had seen. Its colour, shading and seed-vessels are different to the originals.

I see you intend to figure the hybrid *Cistuses*: the spotted rosy red and spotted yellow, I fancy will make a pretty contrast.

Pedigree, I cultivate by seeds, a rather large group of species and varieties in open borders, which bear seeds and sow themselves. By that natural process I have four varieties, one larger flowers, larger seed-vessels, and leaves very like common sage, which I compared.

Many years ago I obtained seeds, brought from Italy—one an up-

right shrub ; it produced white flowers, about five inches diameter ; it gave one kist of seeds, which I sowed in a pot, and it produced three varieties, one the red and spotted, the other two large flowers of other shades, but not a white ; these are all hardy, but do not produce seeds.

REMARKS UPON AN HYBRID PLANT PRODUCED FROM RHODOTHAMUS CHAMÆCISTUS, AND RHODODEN- DRON ARBOREA.

BY MR. LAING, GARDENER AT THE EARL OF ROSSLYN'S, DYSART HOUSE, N.B.

In your August number I observe a copious extract from M'Intosh's Book of the Garden, on hybridization, in which a remark is made about the crossing of *Rhodothamus chamæcistus* with *Rhododendron aboreum* of India, which I was so far fortunate at the time to effect. The seed-pods swelled and ripened most admirably, and to satisfy inquiry I will state the result. The seeds were sown the following February, came up freely, but to my great disappointment turned out to be the same as the female parent (*R. chamæcistus*), with one exception, which of course has not yet proved what it may be. It has somewhat the *appearance* of its male parent (*R. aboreum*), but time alone will tell its flowering properties.

There is no branch of horticulture in which are more delights, and more important results to be obtained, than in the cross-breeding of the various species and varieties of plants ; for example, compare the geranium, the pansy, &c., as now exhibited on our show tables, with original species, and you will find the difference most astonishing ; indeed, so great, that no person unacquainted with the subject would fancy they were from the same miserable origin.

MISCELLANEOUS.

PROPAGATION OF AURICULAS.—Auricula growers are aware that they cannot propagate their plants at pleasure, but must often wait patiently for years before they can get an offset from a favourite variety. By the following plan, I have often got prime young plants of such as I wished to increase. When I repot, about the first week in August, those with long tap roots I cut well back ; the part of the root I thus cut from favourites, I pot, leaving nothing but the cut part above the earth. I then give them a little water, with a syringe or watering pan, and in two or three weeks perhaps as many buds will make their appearance round the old root. These grow very fast, and may be potted singly, in autumn or spring, according to their size. —Y. Z.

LECTURE ON PEAT CHARCOAL. By Prof. Way.—Prof. Way remarked (says the *Chemist*) that, independently of the noxious gases resulting from the putrefaction of animal matter generally, and which consisted principally of sulphuretted hydrogen and sulphuret of ammonia, each particular animal substance, excretion or otherwise, had its *peculiar* odour, which, although abundantly perceptible by the senses, and, in many cases, as in musk, almost inexhaustible, was inappreciable in weight; therefore, by deodorising a large amount of odour, it was not to be inferred that a large amount of manuring matter was thereby secured. He then enumerated the various single and double deodorisers that had been employed. He referred to Sir William Burnett's excellent application of chloride of zinc, and to the ordinary chloride of lime; to gypsum (sulphate of lime), and its conversion, in ammoniacal atmospheres, into sulphate of ammonia and carbonate of lime; to the agreeable odour of pure ammonia, and its power of giving intensity to odours of a disagreeable character, which intensity was lost when the ammonia was withdrawn; to sulphate of iron (green copperas), which when powdered and thrown into tanks turned black, on account of the sulphuret of iron formed on the decomposition of the sulphuretted hydrogen present. He then proceeded to the consideration of charcoal as a deodoriser. He gave an interesting statement of the peculiar action of charcoals in general, arising, he believed, from the great amount of surface their spherical interstices presented, and of the peculiar action and superior value of animal charcoal over all others. He referred to the theory he had been led to form of this peculiar difference, and to a very successful imitation of animal charcoal, which he and Mr. Paine had made, in reference both to deodorising and decolourising properties, from the light porous silica rock, found on Mr. Paine's estate in Surrey, and when broken up and steeped in heated tar, was put into a gas retort, where the tar was burnt off in the state of very pure gas, and a residuum left of the new silicated charcoal in question. He explained that in charcoals it was not the amount of carbon they contained that constituted their value, but the mode in which the carbon was distributed; that animal charcoal contained only 10 per cent. of real carbon, while wood charcoal contained 90 per cent. He referred to the large amount of water, 50 or 60 per cent., which peat charcoal took up, and to the fallacious dry state of the manures, with which this water-carrier was mixed. He feared this mode of introducing water in a latent state into manures, in many cases, gave a turn in the scale more in favour of the manufacturer than of the farmer. He doubted whether peat charcoal could be used economically for the purpose of soaking up tank water; if not, he feared it would prove of no advantage, in other respects, as a remunerative agent to the farmer. It had been long before the public, but had not progressed in market value, as it would have done had its application been successful. He considered it to lead to much error in practice, that the exact nature of the action of charcoal on ammonia was not better understood by the public. Fresh burnt charcoal would absorb a large quantity of ammoniacal gas, but it

was a mistake to suppose that it would consequently abstract ammonia from a liquid impregnated with it; on the contrary, water had the power of displacing from charcoal the whole of the ammonia it had received in a gaseous state within its pores. Peat charcoal did not either make manure or separate it from sewage; it simply rendered manure portable. He exhibited a striking experiment, showing the power of dry peat charcoal to arrest odours. Two open tumblers were half filled with the most offensive sewage-matter Professor Way could obtain, and the surface of each mass covered with a film of thin paper and a thin bed of powdered peat-charcoal resting upon it. These tumblers were in this state handed round to the members, who ascertained the perfect manner in which the sewage-matter was thus rendered no longer offensive to the smell. He then gave an interesting account of the process of Mr. Stothert, by which sewage-matter was reduced, by a double action of purification, into clear water and inodorous precipitate—a process admirably adapted for sanitary purposes, although not for those of agriculture, as the more valuable manuring matters were held in solution and carried off in the pellucid liquid, while the precipitate was comparatively an inert mass.—(*Mechanics' Magazine.*)

PELARGONIUMS.—As you have already given the mode of growing these useful plants for exhibition, perhaps the following remarks on their cultivation for the greenhouse of a private gentleman may not prove unacceptable, as my mode of treatment, though nothing new, has invariably been followed by an abundant head of bloom and healthy foliage. After the plants have flowered the first time, they are removed into the open air, placed upon cinder ashes to protect them against the worms, and are cut down in the beginning of August. In a fortnight, the shoots will have pushed to about an inch, when I proceed to repot them. My practice is, to shake off all the old soil, and to prune the roots to within three inches of the stem. This process, I consider, favours the production of a fine head of bloom, by checking the rapid and vigorous growth of new wood. The plants soon recover, and the destruction of the old roots is succeeded by new and active fibres from the points where the knife had been employed. The following compost I use for the winter potting, viz., two barrowfuls of loam, two of leaf mould, half a barrowful of peat, with one peck of silver sand. The plants are placed where they are partially shaded, receiving a little of the morning sun only. In three weeks, they will have made new roots sufficient to bear removing to a more open situation, where they will receive plenty of light and air. Here they remain till the weather becomes wet and cold, when I remove them into the greenhouse. I place them as near the glass as possible, and admit all the air I can, to prevent their being drawn, and water sparingly during the winter months. In October, I stop the shoots to within four or five inches of the stem. In the beginning of December, I prepare to repot for blooming, using the following soil, which is richer and stronger than the compost previously employed: To two barrowfuls of loam I add two of cow dung, one year

old (I prefer it of this age, as it affords nourishment a greater length of time), half a barrowful of leaf mould, and one peck of silver sand. If the loam be heavy and strong, I add peat, but this is not necessary if the loam is of a sandy nature. I give good drainage, by using plenty of potsherds, and shift into pots a size larger than the plants were previously grown in—either eight or nine-inch ones. I rub off nearly all the old soil, and fill up with the compost above described. The house is kept closed for a fortnight or three weeks; and when I see the plants begin to root freely, I give air as the weather permits. The temperature of the house ranges from forty to fifty degrees Fahr. When the plants are growing freely, I keep them well tied out, forming them into broad and uniform heads. I begin to syringe the plants about the middle of February, choosing the afternoon of a fine day for the purpose, and continue this operation twice a week, till the plants begin to show their bloom. During the months of February, March, and April, I water twice a week, and increase the quantity as the weather becomes warmer. I fumigate for destruction of green fly, and shade from powerful midday sun.—*Gardeners' Chronicle*.

ON THE PLANTS OF CHINA, BY MR. R. FORTUNE.—The tea plant was now frequently seen on the hill sides, this being the outskirts of the great green tree country, to which I was bound. Large camphor trees were frequently seen in the valleys, particularly near the villages. Fallow trees were still in extensive cultivation; and, at this season of the year, being clothed in their autumnal hues, they produced a striking effect upon the varied landscape. The leaves had changed from a light green to a dark blood-red colour. Another tree, a species of maple, called by the Chinese the fung-gze, was also most picturesque from the same cause. These two trees formed a striking contrast with the dark green foliage of the pine tribe.

But the most beautiful tree found in this district is a species of weeping cypress, which I had never met with in any other part of China, and which was quite new to me. It was during one of my daily rambles that I saw the first specimen. About half a mile distant from where I was, I observed a noble-looking fir tree, about sixty feet in height, having a stem as straight as the Norfolk Island pine, and weeping branches, like the willow of St. Helena. Its branches grew, at first, at right angles to the main stem, then described a graceful curve upwards, and bent again at their points. From these main branches, others, long and slender, hung down perpendicularly, and gave the whole tree a weeping and graceful form. It reminded me of some of those large and gorgeous chandeliers sometimes seen in the theatres and public halls in Europe. What could it be? It evidently belonged to the pine tribe, and was more handsome and ornamental than them all. I walked—no, to tell the plain truth, I ran—up to the place where it grew, much to the surprise of my attendants, who evidently thought I had gone crazy.

When I reached the spot where it grew, it appeared more beautiful

even than it had done in the distance. Its stem was perfectly straight, like *Cryptomeria*, and its leaves were formed like those of the well-known arbor-vitæ, only much more slender and graceful. This specimen was fortunately covered with a quantity of ripe fruit, a portion of which I was most anxious to secure. The tree was growing in some grounds belonging to a country inn, and was the property of the innkeeper. A wall intervened between us and it, which I confess I felt very much inclined to get over; but remembering that I was acting Chinaman, and that such a proceeding would have been very indecorous, to say the least of it, I immediately gave up the idea. We now walked into the inn, and, seating ourselves quietly down at one of the tables, ordered some dinner to be brought to us. When we had taken our meal we lighted our Chinese pipes and sauntered out, accompanied by our polite host, into the garden, where the real attraction lay. "What a fine tree this of yours is! we have never seen it in the countries near the sea where we come from; pray give us some of its seeds." "It is a fine tree," said the man, who was evidently much pleased with our admiration of it, and readily complied with our request. These seeds were carefully treasured; and as they got home safely, and are now growing in England, we may expect in a few years to see a new and striking feature produced upon our landscape by this lovely tree. Afterwards, as we journeyed westward, it became more common, and was frequently to be seen in clumps on the sides of the hills. This tree has been named the *Funeral Cypress*.—*Fortune's Journey to the Tea Districts of China.*

HINTS FOR THE CULTIVATION OF BABIANAS, GLADIOLI, IXIAS, SPARAXIS, TRITONIAS, &C., &C., IN THE OPEN BORDERS, BY AMICUS.—In September, or at the latest, in October, prepare your beds or borders by well digging them a spit deep, burying a stratum of good rotten manure at the bottom. The surface soil should be rendered open by mixing sand with it, and being well broken in the digging; plant the bulbs in clumps or rows, from $2\frac{1}{2}$ to 6 inches deep (depending on size of root, and sort), taking care to cover them one inch deep with sand, previous to re-covering with the mould. After the roots are planted, rake the ground well, giving it a southern inclination; if possible, keep it free from weeds and stir it occasionally with a small fork, which accelerates their growth; in case of very severe frost, cover the surface of the ground two or three inches deep with dry litter or sea sand. The different varieties will flower from May till August.

BLOOMING THE YELLOW NOISETTE ROSE.—Complaints have been made that this rose is difficult to bloom; and having had several of them to flower very successfully for the last two years, I send you the method I have used, hoping it may be useful to some of your readers:—The plants are planted in rich mould, in the open border. When the buds begin to show, I place a hand-glass over each rose tree; and, to insure plenty of air, I put four small pots under the four corners of the hand-

glass. It will be necessary to shade in hot sunshine. I find, if they are not covered with a hand-glass, that the outside petals rot before the inner ones open. I had six fine noisettes this year, on one small plant; and there will be a second crop about the end of July.—*An Amateur.*

ON PLANTING A TULIP ROOT.

BY JAS. MONTGOMERY.

Here lies a bulb, the child of earth,
Buried alive beneath the clod,
Ere long to spring, by second birth,
A new and nobler work of God.

'Tis said that microscopic power,
Might through its swaddling folds descry
The infant-image of the flow'r,
Too exquisite to meet the eye.

This, vernal suns and rains will swell,
Till from its dark abode to peep,
Like Venus rising from her shell,
Amidst the spring-tide of the deep.

Two shapely leaves will first unfold ;
Then, on a smooth elastic stem,
The verdant bud shall turn to gold,
And open in a diadem.

Not one of Flora's brilliant race
A form more perfect can display ;
Art could not feign more simple grace,
Nor nature take a line away.

Yet, rich as morn of many a hue,
When flushing clouds through darkness strike,
The tulip's petals shine in dew,
All beautiful,—but none alike.

Kings, on their bridal, might unrobe
To lay their glories at its foot ;
And queens their sceptre, crown, and globe,
Exchange for blossom, stalk and root.

Here could I stand and moralize :
Lady, I leave that part to thee.
Be thy next birth in Paradise,
Thy life to come, eternity !



CHRYSANTHEMUMS are the most valuable plants we have for autumn decoration, either for the greenhouse or the flower garden; they fill up a blank that no other plants we have could do, supplying a profusion of beauty of almost every colour. They have become a desideratum in all well-managed flower gardens, having the facility to plant a proper proportion of the most showy kinds, which ornament them, when the season keeps open, up to December. In order to have the flower garden lively as possible, the succession to Chrysanthemums must be made up with evergreen shrubs; it is readily done at a trifling cost by plunging in potted plants of *Laurustinus*, *Aucuba*, myrtle-leaved, broad-leaved, and variegated *Box*; gold and silver-striped, green-leaved, yellow and crimson-berried *Hollies*; *Arbutus*, *Rhododendron*, *Mahonia aquifolia*, *Phillyrea*, *Arbor vitæ*, *Bay*, *Kalmia latifolia*, dwarf *Laurels*, *Daphne pontica*, *Cedars*, *Cotoneasters*, &c. A garden thus furnished produces a very cheering appearance; and those who have not seen one so ornamented cannot adequately conceive of its beauty and finished neatness. This attention most amply repays for the small expense, producing a lively appearance, instead of having bare beds for several months. If any *Tulip* bulbs be still out of ground, plant them as early as possible.

There are a number of very handsome single and double varieties of *Anemones*, which are highly ornamented to a flower garden, whether in patches in the beds, or as an edging. To bloom well next season they must be planted immediately.

The *Gentiana acaulis* is a most charming spring flower, suited admirably for edging or patches. Its intense blue flowers, in contrast with *Anemones*, *Hepaticas*, and similar early-blooming plants, is very striking. Attention will be necessary to protect the tender kinds of herbaceous, by a layer of dry leaves, pots, boughs, or branches of evergreens, &c., also the stems of tender climbing and other *Roses*, by tying a covering of furze over them, that, whilst it fully protects, admits sufficiency of air for the well-being of the plant.

Auriculas and *Polyanthuses* require plenty of air in fine weather, and but little water. The like attention will be required to *Carnations*, *Pinks*, &c., kept in pots. *Dahlia* roots should be looked over, to see if any are moulding or likely to damage.

Let the roots be dry before they are laid in heaps. Newly planted shrubs should be secured to stakes, so that they are not loosened by the wind. Where it is desirable, reduce patches of border flowers to a suitable size. *Ten-week Stocks* and *Mignonette*, in pots for blooming early next spring, to adorn a room or greenhouse, must not be over-watered, and be kept from frost. A cool frame, well secured by soil or ashes at the sides, and plenty of mats or reeds to cover at night, will answer well. During hard frosts, if additional soil be required for flower beds upon grass lawns, advantage should be taken to have it conveyed at the time, so that the turf may not be injured by wheeling. Pits or beds for forcing *Roses*, &c., should be prepared early in the month. Tan or leaves are most suitable, unless there be the advantage of hot water or steam. Newly planted shrubs of tender kinds should have their roots protected by laying some mulch. Suckers of *Roses*, &c., should now be taken off and re-planted for making bushes, or put in nursery rows. Soils for compost should now be obtained. Beds of *Hyacinths*, *Tulips*, &c., should have occasional protection. Any roots not planted may successfully be done in dry, mild weather, till February. Sweet *Violets*:—plant these little gems as much as possible along the sides of walks, near seats, rooms, banks, under trees, &c.; they are so highly fragrant as always to be acceptable, and more especially being early

spring flowers. Encourage all the spring ornaments as much as possible: Crocuses are pretty flowers, always gay in sunshine, and give a peculiar cheerfulness to every place they occupy; never be sparing in the quantity of them near a dwelling-house. Do not omit the first flower that awakes thee from the repose of winter—

"A flower that first in this sweet garden smiled,
To virgins sacred, and the SNOWDROP styled."

FORCING STOVE OR PIT.

Aconites, Crocuses, Violets, Mignonette, Stocks, Tulips, Cyclamena, Narcissus, Lilies of the Valley, Hepaticas, Primroses, China Primroses, Persian Irises, Cupheas, Hyacinths, Pinks, Carnations, Tree Carnations, Heliotropes, Scarlet Geraniums, Salvias, Gardenias, Roses, Azaleas, Cinerarias, Jasmines, Honeysuckles, Deutzias, Rhododendrons, Persian Lilacs, Rhodoras, Ribes, Mezereums, Correas, &c., required to bloom from January, should be brought in early in the present month. The plants should be placed at first in the coolest part of the house; never allow them to want water. Pots or boxes containing bulbous-rooted flowering plants, as Hyacinths, Narcissus, Persian Irises, Crocuses, &c., should occasionally be introduced, so as to have a succession of bloom. Cactus plants that have been kept out of doors, or in the greenhouse, should occasionally be brought into the stove for flowering, which gives a succession. If any of the forced plants be attacked with the green fly, a syringe with diluted tobacco-water will destroy them. If the leaves appear bit, and turn brown (the effect of damage by red spider), a syringe of soap-suds at the under side of the leaves is effectual to destroy them. The glutinous substance remaining not only kills those it is applied to, but prevents others returning there. The old *Eranthemum pulchellum*, with its fine blue flowers, *Justicia speciosa*, *Gesneria zebrina*, *Justicia pulcherrima*, *Aphelandria cristata*, *Poinsettia pulcherrima*, *Cestrum aurantiacum*, and *Begonia fuchsoides*, are fine winter ornamental blooming plants.

IN THE GREENHOUSE, &c.

As much fire as will barely keep out frost will only be necessary; and, for the purpose of drying up damp arising from foggy nights, or from watering, all possible air should be admitted in the daytime; but mind to keep the plants from damage by frost.

Fuchias and greenhouse plants, intended to be inured to the open air, will require to have protection at the roots, and probably, for the first winter, over the tops too, by furze branches, canvas, wicker baskets, mats, &c. If greenhouse plants require watering and syringing over the tops, let it be done in the morning of a clear day, when air can be admitted; and towards evening a gentle fire-heat should be given. Calceolarias must be in a cool situation. Whilst in a cool and moist atmosphere, the shoots will often push at the underside numerous rootlets; where such are produced, they should be taken off and potted. Pelargonium plants for exhibition should be repotted by the middle of this month; according to the size of the plants must be the pots. The smallest sized pots in which plants are to be when shown are the 24's, eight inches in diameter, and the largest sized are eleven inches in diameter. The plants need not be potted into these sizes now, but a size less, and in February be repotted into their final pots. The plants must not be crowded together, but be kept apart. Cinerarias are often attacked at this season by the green fly; let the plants be placed in a hot bed frame, and be fumigated with tobacco-smoke at the first appearance of the insects.

BRIEF REMARKS.

THE EXOTIC AND OTHER FLOWERING PLANTS AT THE CRYSTAL PALACE AND GARDENS AT SIDENHAM.—So little is publicly known about the plants at the Crystal Palace, except that which is gathered during a momentary admiring glance, as the visitor strolls through the building, that we think a few explanatory details may not be misplaced.

In the first place, then, the celebrated botanical collection of Messrs. Loddiges at

Hackney was the basis of this Crystal Palace collection. It was a fortunate coincidence that, at the very time when the Sydenham project was under consideration, Messrs. Loddiges had resolved to retire from business, and to sell off the whole of their unequalled collection—unequalled so far as private nurserymen are concerned. Nay, the very sale catalogue was being drawn up, when Sir Joseph Paxton, by authority of the Crystal Palace directors, stepped in and bought the entire collection by private contract, giving one round sum for the whole of the plants. The plants have remained at Hackney until room was prepared for them at Sydenham; they have been conveyed by waggons and carts on the ordinary road from one place to the other; and a most formidable undertaking this has been, considering the distance, the many thousands of plants, and the large size of numbers of them. Scarcely a day has elapsed, for many months, on which these plant-loads have not been seen wending their way from north to south.

The collection at Messrs. Loddiges' was in every way remarkable. It was about ninety years ago that Conrad Loddiges began to form it, and it gradually became one of the most celebrated in Europe. This was the parent collection, from whence that at Sydenham has sprung. A large portion of plants have been conveyed from the one place to the other, but there are still many to come. The collection comprises numerous specimens remarkable either for their size or for some other characteristics. There is, for instance, the *Areca catechu*, whence the betel is obtained; there is the *Artocarpus integrifolia*, which, though a small tree here, rises to sixty feet in its own native clime; there is the *Piper nigrum*, the black-pepper tree; the clove-tree, and others yielding spices; the strange and fearful poison-tree of Java; the *Calmus rudentum*, which rises to a height of 200 feet in its Asiatic home; the fantastic umbrella-tree, with its broad-spreading leafy summit; the cabbage-palm; the *Elais Guineensis*, now of such extraordinary value to us as the source of palm oil, which is pressed out from the pulpy part of the fruit; the *Phoenix farinifer*, yielding a kind of sago; the *Latania Borbonica*, the monarch of Loddiges', which must have a paragraph to itself presently; the *Theobroma cacao*, whence cocoa and chocolate are obtained; the cow-tree of South America, so named from the milky juice which it yields; the banana; the plant which yields balsam of capivi; the *Cordia manioica*, remarkable for its rope-like structure; the golden-leaved *Chrysophylla macrophylla*, which in Sierra Leone attains a height of 100 feet; the *Bertholletia excelsa*, the magnificent tree which yields the Brazil nut; the mahogany-tree. Indeed, dwarfish as most of the plants necessarily are in comparison with the sizes which the species would attain in their own native homes, they present, besides beauty of appearance, abundant materials for instruction in respect to the economical and medicinal uses to which they are applied.

The Loddiges' collection, then, was the basis whereon Sir Joseph Paxton proceeded to form the Sydenham collection. But, empowered by the company, he has likewise made large purchases elsewhere. He has obtained, from one quarter or another, as many as 8,000 camellias, and 10,000 geraniums, fuchsias, and calceolarias. There are no fewer than 600 roses in the Alhambra alone, forming elegant parterres around the marble fountain in the Court of the Lions. One very interesting purchase has been made—a collection of seventy-two orange trees and twenty-four pomegranate trees, brought from the Chateau de Neuilly after the death of the late King Louis Philippe. The remarkable shape and large size of the orange trees, and the brilliant green of the leaf, render them very conspicuous and ornamental objects; while pomegranate trees carry us in imagination to Eastern climes, where all sorts of beautiful princesses ate of their fruit in enchanted castles and fairy palaces.

Besides purchases, the Sydenham collection has been enriched with many botanical gifts, and will doubtless be enriched with many more, for there is abundant liberality of the kind among wealthy persons of taste in this country. They will give, if their gifts seem likely to be appreciated and taken care of, as we have had proof in the noble presents of books to the British Museum, and of pictures to the National Gallery—despite of our lamentable want of good rooms in which to place the pictures. Her Majesty has given two specimens of the *Araucaria excelsa*, and about a dozen other plants. The Duchess of Gloucester has given a collection of

white camellias. There has been presented a fine American aloe by the Misses Ranall of Blackheath; an *Araucaria excelsa*, by Mr. Lloyd of Wickham; an American aloe, by Miss Millington of Greenwich; a *Ficus macrophylla* from Australia, by the Botanical Society; an australian, by Earl Powis; a splendid Australian flowering-plant, by Mr. Fairrie of Liverpool; a small collection of plants, by Earl Mansfield, from Caen Wood; a magnificent aloe, which had been brought, when young, from the Palace of the Cæsars at Rome, by Mrs. Jenkyns of Wells Deanery; a variegated aloe, by Miss Blaxwell of Camberwell; two araucarias by Mr. Wells of Red Leaf; a striped aloe, by Lieutenant-colonel Tweedie of Bromley; a *Dracena draco*, by Mr. Keen of Croydon; two American aloes, by Mr. Letts of Dulwich; a noble araucaria, by Messrs. Veitch, of Exeter; a collection of aquatic plants, by the Duke of Devonshire; and a large number of other gifts, which, though the company very properly record them, need not be catalogued here.

The arrangement of so fine a collection has necessarily occupied much and weighty attention. It was at one time intended to arrange all the plants within the building geographically, in some determinate order, according to the countries to which the respective species belong. But difficulties have presented themselves. Although there are ten architectrual courts to illustrate ten different epochs of art, it by no means followed that the company possessed, in equal ratios, plants belonging to all the various countries represented by those courts; and it might very likely be, that the botany of some countries, if unrelieved by specimens from other places, would look meagre and poverty-stricken in respect to colour or size, and would not aid in carrying out the picturesqueness which has been so much studied in the general arrangement of the fine arts departments. It was decided, therefore, to adopt a systematic arrangement in connection with the ethnological specimens, and also in one important part of the park or grounds; but to arrange everything else in such forms of beauty as would contribute to the general effect of the Palace, considered as a whole—to make the plants and flowers a graceful decoration to the building itself, and to the courts and halls which occupy so large a portion of its area.

The ethnological groups, the Nations, are really instructive, for their botany as well as for their characteristics of human tribes. There are a few of them at the northern end of the building, but the main portion is at the southern end. Here we have the Australian, the Tasmanian, the Papuan, the Tahitian, the Negro, the Bosjesman, the Hottentot, the Bornean the Sumatran, the American-Indian, the Esquimaux—all are given with the scrupulous regard to feature and form which Dr. Latham is well fitted to insure; and such simple adjuncts are provided as may assist in illustrating the dress, and weapons, and usages of the people. Then, in each bed or parterre which contains a group, Sir Joseph Paxton has brought his botanical knowledge to bear, by planting trees obtained from or indigenous to the country inhabited by that group. When the plants are more fully labelled than they yet are—and we recommend the utmost possible liberality in this respect, as a matter that will be sensibly appreciated by the mass of general visitors—these nations will be very instructive, and we can learn a little concerning the botany of tropical climes.

These national groups, we have said, offer facilities for a systematic arrangement of the plants; but in other parts of the building, the picturesque has been studied rather than the systematic, without, however, an entire neglect of the latter. For many months has the process of arrangement been carried on by a whole army of gardeners, under Sir Joseph Paxton as commander-in-chief, and Mr. Eyles, as one of his two head generals. Trees and shrubs of considerable size, mostly in boxes, are ranged along both sides of the nave at appropriate intervals, forming a beautiful vista as seen from either end. Then, in front of all the eighteen or twenty courts, Fine Art and Industrial, beds of beautiful flowers are arranged, with winding paths between them, to afford access to the courts, an arrangement singularly novel and refreshing to the eye. A third repository is found in some of the courts themselves, where, as in the Alhambra, plants and flowers can be introduced in harmony with the general style and purport of the court. Another source of arrangement is afforded by the two marble basins—one marble *in present*, and the other marble *in futuro*: the elegant vases and circular recesses around these basins are filled with exquisite flowers; while, when the hydraulic arrangements shall have been completed, the basins themselves will be filled with aquatic plants, including

the widely-renowned *Victoria regia*. Wherever there are any large spaces between or beyond these courts, these have been filled with plants, sometimes mounted upon or grouped around mounds of root-work. Lastly, suspended from a great height, are upwards of 300 wire flower-baskets, of elegant contour, which furnish a very striking addition to the grandly-beautiful appearance of the nave. Each basket is, internally, a kind of wire hemisphere three or four feet in diameter; and this is enclosed within an outer basket of graceful form and florid decoration—florid, so far as wire-work can be. Each basket is well packed with moss round the interior; rich mould is placed within the moss, and flowers are planted in the mould. The baskets are hung up at regular intervals along both sides of the nave by wire-ropes, which can be raised or lowered; and an ingenious plan is adopted for watering the flowers in the baskets. Flowers with bright colours and drooping tendrils are purposely selected; and nothing can be more pleasing than the appearance thus presented.

A visitor, leisurely strolling along through the building will meet with many plants which attract attention. At one place is the “Elephant’s Foot,” or *testudinaria*, one of the oddest of all odd plants. It looks like a block of wood, brown and hard, and furrowed over in a strange manner; it has just two delicate little branches at the top, but else it looks like a huge lifeless lump; it grows on rocks and barren places. There are multitudes of palms and ferns, which deserve our notice, for the grandeur of their leafy summits. There is the Caffre bread-tree, with its strange shell-like exterior and pulpy interior. There are the tiny oaks in front of the Nineveh Court, grown from acorns brought from Nineveh itself. There are the Egyptian palms, near the Egyptian colossi and sphinxes—palms which, like some other things at the present day, have suffered through the war in the East; for they were detained so long at Malta while the *Himalaya* was conveying troops to Turkey, that they have not yet recovered from the ill effects of their journey. There are the pomegranate-trees, fittingly placed near the Alhambra, and looking beautiful with their small delicate leaves. There is a goodly number of the orange-trees, which will hold up yet more grandly when they are dressed in their new boxes or cases. There are creepers which, next year, will have crept up to the second tier of girders—some forty feet from the ground.

We have spoken once of the *Latania Borbonica*, the tallest, and bulkiest, and heaviest plant in the building: it was Loddiges’ most choice palm, and has always been highly valued. It is about five-and-thirty feet in height; and at Hackney it had not room to grow, for its top was flattened against the glass roof of the palm-house. Here, however, at Sydenham, it has everybody’s permission to grow as tall as it likes. The stem is brown and smooth, covered with a yellowish cuticle in the lower part, and with a peculiar hairy-like envelope higher up; and it has a beautiful plume of fan-like leaves at the summit. There is an interesting bit of history connected with this palm. It was brought originally from the Mauritius, and was once in the collection of the Empress Josephine at Fontainebleau; it was purchased thence by Mr. Evans, of Stepney, and at his decease, in 1814, it came into the possession of Messrs. Loddiges. At that time it was only five feet in height; but in forty years it grew sevenfold. The tree itself weighs upwards of a ton, and, when packed in a box of solid earth, eight feet square, the ponderous mass weighed no less than fifteen tons. When, therefore, the time came for removing the tree from Hackney to Sydenham, great preparations had to be made. Messrs. Younghusband, who have removed the materials of the old Crystal Palace from Hyde Park to Sydenham, and most of the plants from Hackney to Sydenham, were intrusted with this duty also. A very strong carriage was made, weighing seven tons, and having enormously broad wheels; and on this the tree was placed, strongly incased in timber, with iron bracings, and shored up on either side. Thus arranged, on one fine day towards the end of July, Messrs. Younghusband harnessed about thirty horses to the carriage, and drew the *Latania Borbonica* in triumph through the streets of London. The fan-like leaves sometimes swept against the three-story windows of the houses, and we may be pretty sure the boys of London had a rich treat in following the waggon.

The plants at Sydenham, as every one is aware, are not confined to the interior of the building. There is a park, which, when completed, will be as instructive to

the botanical student as attractive to general visitors for its fountains. And here we will venture to give a few words of advice to visitors, by way of parenthesis. In fine weather, enter the Palace from the railway by way of the park. Do not feel compelled to trudge along the hundreds of feet of glazed corridor, gallery, passage, and wing, and to ascend the formidable flights of stairs, and to pass through so much of the refreshment department before entering the building. There is no occasion for this. There is an entrance into the park immediately adjoining the railway station, and you get into a scene of beauty at once. You have the yet unfinished, but even now striking Rose Temple immediately before you; you have fine gravel-walks winding between grassy plots and beds filled with lovely flowers; you have noble terraces on the left, on the balustrades of which are statues, vases filled with flowers, and some of Louis Philippe's Orange-trees; and lastly, you have the finest of all possible views of the Crystal Palace itself; for from no point does the grandeur of its garden front become so perceptible as the south-east, within a short distance of the railway station. Of course, in unfavourable weather, it is a good thing to have a covered passage-way from the station to the palace; but at all other times the park route is to be preferred; you are pleased at the outset, and enter the building determined to be pleased with that which is to come.

The Park, so far as plants are concerned, will present very different appearances in different parts. The upper terrace, close to the building, has little besides flowers placed in vases. The lower terrace forms part of the Italian garden, which is laid out with beds of graceful shape, filled with choice shrubs and flowers. Below this is the English garden, presenting, both in its general arrangement and its plants, an analogy to the pleasure-ground or garden of an old English mansion. Many of the trees which formerly occupied this spot have been retained, as forming suitable ornaments for such a garden. There is one cherry-tree which perhaps may, in future years, be pointed out as a memorial; for Sir Joseph Paxton sat under that tree while he sketched the vast idea of the Crystal Palace and its Park.

We have said that one of the two modes by which a systematic arrangement of plants will be adopted, will be put in force in the Park. Under the care of Mr. Milner, who is second in command out of doors, as Mr. Eyles is within, this park-system will gradually be carried out in a somewhat remarkable way. There is to be an Arboretum—a classified arrangement of trees and shrubs. This Arboretum is to assume the form of a broad, well-made gravel-path, bordered on either side with the classified plants. The path will not be straight and monotonous: it will begin near the railway station; it will wind about in graceful curvatures; it will follow in part the borders of the tidal lake, and carry the visitor within easy reach of the geological and fossil specimens; and it will bend east and north of the great fountains until it comes to an end near the north wing of the Palace. Throughout the whole length of this path, the trees, and shrubs, and hardy plants will be arranged according to the system of Jussieu. There will be abundance of labels or inscriptions to denote genera and species, and so forth. Speaking in general terms, and without reference to minute correctness, the Park will ultimately be bounded by the Palace and its wings on the west, and by the Arboretum on the east—the two meeting on the north and the south.

It is obvious at a glance, that many months must elapse before such an Arboretum can be completed; but it is no more than just towards those concerned, to know that plans are in progress for imparting system as well as beauty to the arrangement of the large and fine collection of plants belonging to this company. There is a rugged hilly spot on the south margin of the Park, which is now being formed a collection of ferns, built up on a mass of rock-work, or rather root work, in rather a singular way; but this will form no component part of the Arboretum.—*Chambers' Journal*.

HOLYHOCKS.—Culture.—Plants, if transplanted into the open ground in *autumn*, are very liable to rot during winter, more especially if the soil be of a wet and cold description; the better plan is to put them into six or eight-inch pots, place them in a cold frame, give a supply of air by raising the *bottom* of the frame, and remove the glass-light on fine sunny days. Plant out in spring in *well-manured* soil.

SUGGESTIONS FOR EXHIBITORS OF HOLLYHOOKS.—Quality, rather than size and length of *spike*, should be the first point of consideration. The petals of the flowers should be of a thick substance, the edges smooth and even, the florets, which occupy the centre of the blossom, must be *compact*, closely arranged, rising in the middle to half a globular form, with a *stiff guard petal* (the outer petal is meant) extending about half an inch, or in proportion to the size of the centre ball, so that the different parts of the flower have an uniform appearance. The arrangement of the flower *on the spike* should be regular, not crowded together in a confused mass, nor loosely hanging with open spaces between each flower, but so disposed that the shape of each may be distinctly seen, and fully blown, the uppermost covering the top; a few small green leaves between the flowers increases the beauty of the spike. As a last point, it is highly important that the colours be bright, strong and distinct.

THE PINK.—At the termination of another season, and while the blooms of 1854 are fresh in our memory, we will briefly record our impressions of what has been doing with the pink since our last notice in the *Florist* for August, 1854; and this is the more necessary, as there are so many *new varieties* coming under notice for the first time. The early blooms this season had a tendency to be rough on the edge and but imperfectly laced. As the season advanced they bloomed much better. The display of this flower at the Royal Botanic Society's July exhibition was the best of the season, the flowers being generally as good as we remember to have seen them, being well laced, of good size, and without confused centres. Allowing for the influence the season has exercised on some varieties, our opinions given a twelvemonth since have proved tolerably correct. In speaking then of Mr. Bragg's flowers, we placed James Hogg as the *best*, and it undoubtedly is, although the lacing is occasionally too faint. The blooms of this variety, exhibited at Basingstoke, by Mr. Surman, gardener to J. C. Roberts, Esq., Twyford, near Winchester, showed as perfect a pink as we remember to have seen. Dr. Maclean's flowers have exceeded our expectations, having all—with the exception of Great Criterion, the plants of which suffered so much during the long, severe winter, that they never finally recovered—proved most satisfactory. New Criterion is a most superb flower, and opens dark purple, which changes to rosy purple as it ages, and is in either state a charming flower, full and smooth on the edges. Brunette, a heavily laced dark variety, is also a bold, noble flower, and has the largest petal and widest marking of any flower we know, and, heavily laced as it is, there is a large space of white in each of the large broad petals. Adonis, another of Dr. Maclean's seedlings, is a chaste, smooth flower, very clear in its marking, petals smooth, and laced with soft rosy purple. Mrs. Norman, as shown by Mr. Baker, of Woolwich, has a very fine petal, and is altogether a first-class flower. Hale's Field Marshal and Hale's Mr. Weedon are two useful evenly-laced flowers. Turner's Richard Andrews is a large well-laced flower, and may be termed a broad-petalled Whipper-in, as it resembles that variety, but has a wider and smoother petal. Duke of Devonshire is a flower with a smooth, well-shaped petal, as full as Great Britain, and, like that variety, has too many petals, and its size can be reduced by leaving plenty of buds. Looken's John Stevens and Juliet are promising flowers, the former a dark purple, and the latter a light purple-laced variety; also Mr. Hoyle and Mr. Hobbs, red-laced flowers of good average quality, and good exhibition flowers. Norman's Napoleon is very dark-laced, a striking flower with a large bold petal, but is rather thin. Colchester Cardinal has proved a fine flower, with first-rate properties, having a very smooth stout petal. Of older varieties, Maclean's Criterion stands at the head; it has been very fine this season, and fuller than is often seen. Bragg's Jupiter has been very fine, and President and Purple Perfection have been shown good. Optima, Ada, Kate, Mrs. Wolf, Sarah, Lord Charles Wellesley, Arthur, Beauty of Salt Hill, Constance, Esther, Sappho, Lola Montes, Richard Smith, Titus, Lord Valentia, Perfection and Hurdstone's Fanny, have all been exhibited in very good condition, and are generally very good flowers. We have seen a few yearlings that possess excellent properties, but refrain from enumerating them until another season has confirmed their being dissimilar, and desirable new varieties, as they appear at first to be. Some of the best flowers we have had were produced from plants wintered in small pots and planted out in spring, and, considering the small space they occupy during the winter, and there being no risk of losing them should the season be unfavourable, this plan should be more generally adopted.—*Midland Florist*.

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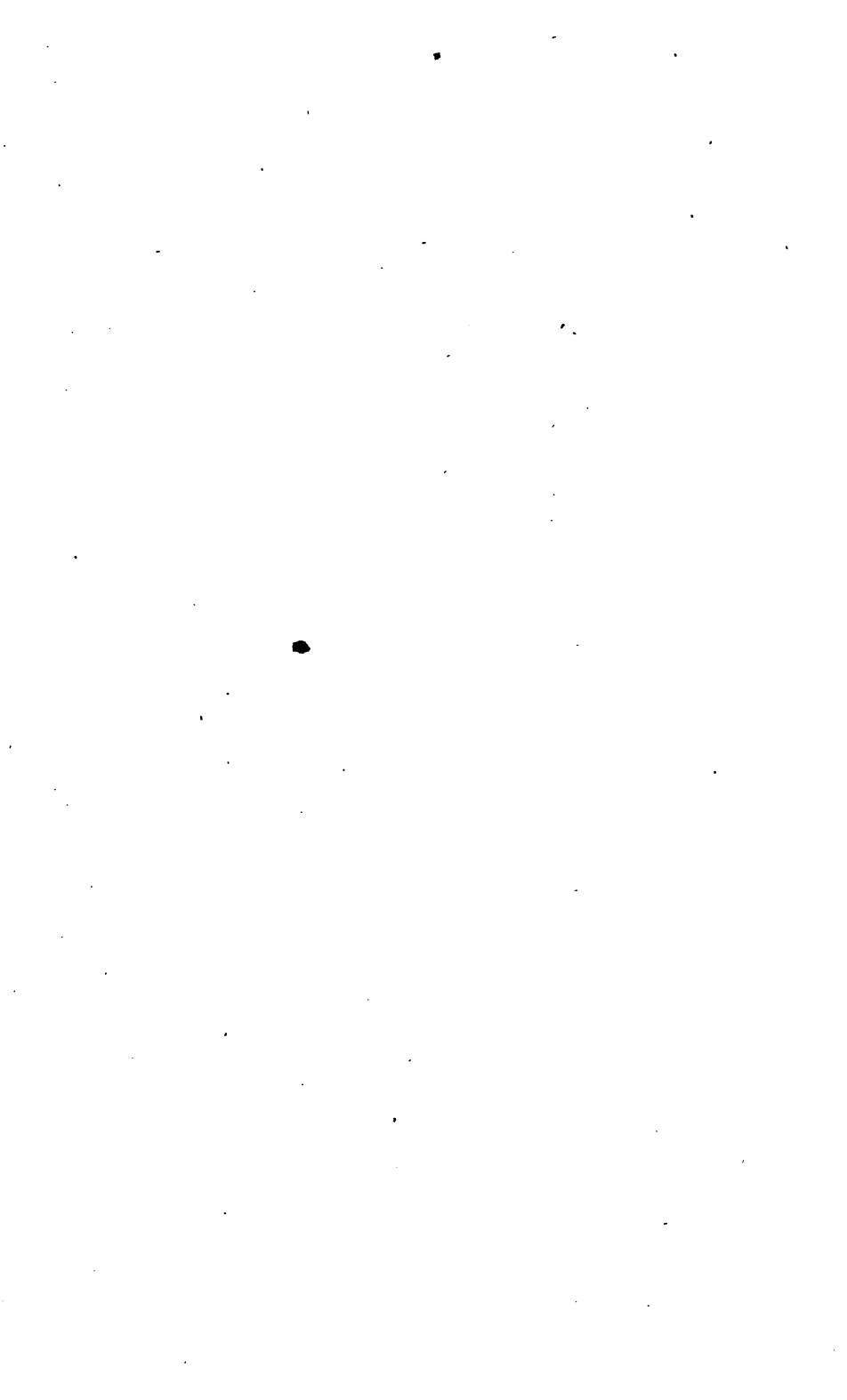
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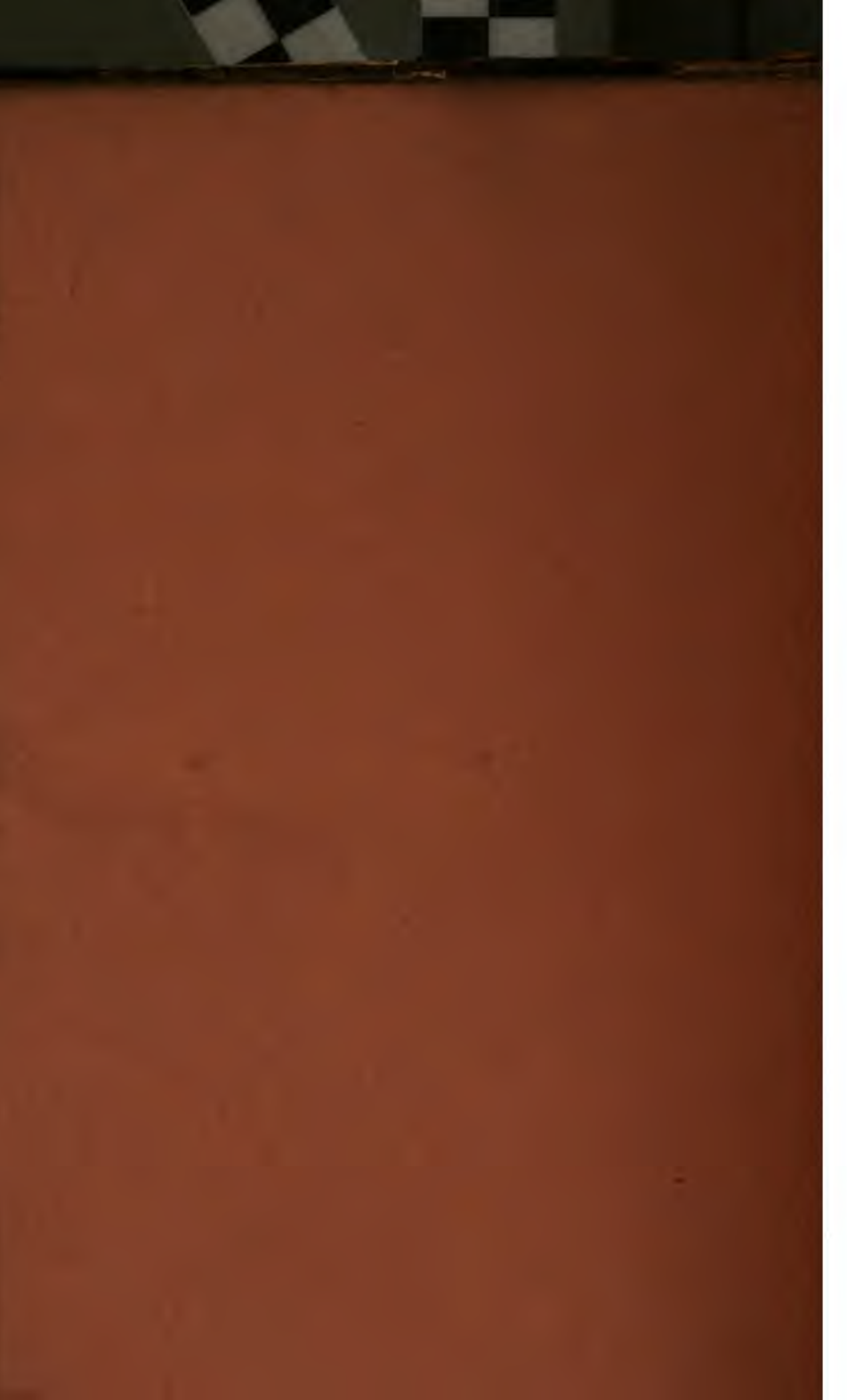
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